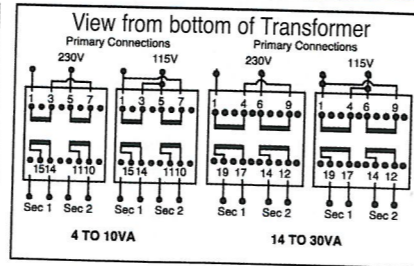
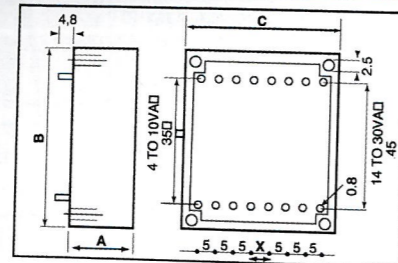
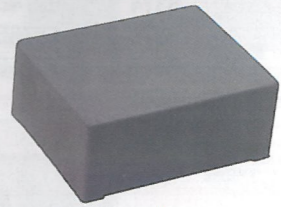
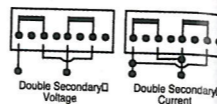


**PCB TRANSFORMERS**

**Flat Pack Transformers**



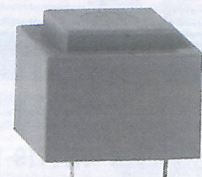
Series Parallel Connections



4VA		6VA		10VA		14VA		18VA		24VA		30VA	
CODE	VOLTS	CODE	VOLTS	CODE	VOLTS	CODE	VOLTS	CODE	VOLTS	CODE	VOLTS	CODE	VOLTS
FP4272	2x7,2	FP6272	2x7,2	FP10272	2x7,2	FP14272	2x7,2	FP18272	2x7,2	FP24272	2x7,2	FP30272	2x7,2
FP4209	2x9,0	FP6209	2x9,0	FP10209	2x9,0	FP14209	2x9,0	FP18209	2x9,0	FP24209	2x9,0	FP30209	2x9,0
FP4212	2x12	FP6212	2x12	FP10212	2x12	FP14212	2x12	FP18212	2x12	FP24212	2x12	FP30212	2x12
FP4215	2x15	FP6215	2x15	FP10215	2x15	FP14215	2x15	FP18215	2x15	FP24215	2x15	FP30215	2x15
FP4218	2x18	FP6218	2x18	FP10218	2x18	FP14218	2x18	FP18218	2x18	FP24218	2x18	FP30218	2x18
FP4224	2x24	FP6224	2x24	FP10224	2x24	FP14224	2x24	FP18224	2x24	FP24224	2x24	FP30224	2x24
A=19	B=53	A=23	B=53	A=29	B=53	A=25	B=68	A=29	B=68	A=32	B=68	A=36	B=68
C=44	X=5	C=44	X=5	C=44	X=5	C=57	X=6	C=57	X=6	C=57	X=6	C=57	X=6

\*For more technical information contact your nearest AC/DC branch or distributor

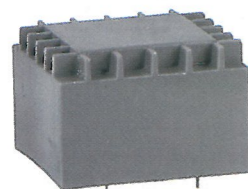
**Type 30 - 1,5 VA**



Eff.: 66% Temp. rise 21 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View
P01172	7,2	200	10,5	
P01272	2 x 7,2	2 x 100	2 x 10,9	
P01195	9,5	150	14,1	
P01295	2 x 9,5	2 x 75	2 x 14,1	
P01112	12,0	125	17,6	
P01212	2 x 12,0	2 x 62	2 x 17,1	
P01115	15,0	100	22,9	
P01215	2 x 15,0	2 x 50	2 x 22,2	
P01117	17,5	85	26,2	
P01217	2 x 17,5	2 x 42	2 x 25,9	
P01124	24,0	62	34,8	
P01224	2 x 24,0	2 x 31	2 x 34,5	

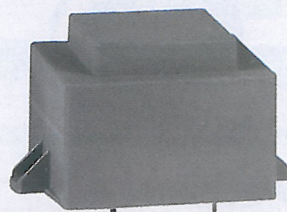
**Type 38 - 2 VA**



Eff.: 60% Temp. rise 24 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View
P02172	7,2	275	8,4	
P02272	2 x 7,2	2 x 137	2 x 8,4	
P02195	9,5	200	11,2	
P02295	2 x 9,5	2 x 100	2 x 11,1	
P02112	12,0	170	14,4	
P02212	2 x 12,0	2 x 85	2 x 14,1	
P02115	15,0	130	17,9	
P02215	2 x 15,0	2 x 65	2 x 17,1	
P02117	17,5	115	20,8	
P02217	2 x 17,5	2 x 55	2 x 20,2	
P02124	24,0	83	28,7	
P02224	2 x 24,0	2 x 40	2 x 28,8	

**Type 42 - 3 VA**

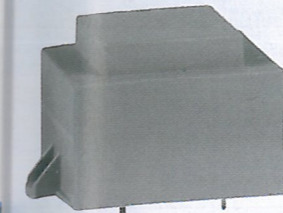


Eff.: 67% Temp. rise ±28 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View
P03172	7,2	415	8,6	
P03272	2 x 7,2	2 x 208	2 x 8,7	
P03195	9,5	330	11,3	
P03295	2 x 9,5	2 x 165	2 x 11,3	
P03112	12,0	250	14,4	
P03212	2 x 12,0	2 x 125	2 x 13,9	
P03115	15,0	200	17,9	
P03215	2 x 15,0	2 x 100	2 x 18	
P03117	17,5	170	21,4	
P03217	2 x 17,5	2 x 85	2 x 21,2	
P03124	24,0	125	28,5	
P03224	2 x 24,0	2 x 60	2 x 28,5	

**PCB TRANSFORMERS**

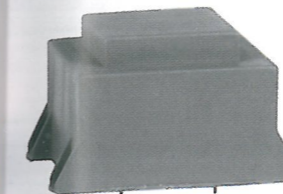
**Type 48 - 5,5 VA**



Eff.: 74% Temp. rise ±30 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View (Footprint)
P05172	7,2	760	9,4	
P05272	2 x 7,2	2 x 380	2 x 9,2	
P05195	9,5	580	12,0	
P05295	2 x 9,5	2 x 290	2 x 11,7	
P05112	12,0	450	15,1	
P05212	2 x 12,0	2 x 225	2 x 15,0	
P05115	15,0	360	18,7	
P05215	2 x 15,0	2 x 180	2 x 18,9	
P05117	17,5	310	21,9	
P05217	2 x 17,5	2 x 155	2 x 21,9	
P05124	24,0	230	30,2	
P05224	2 x 24,0	2 x 115	2 x 30,9	

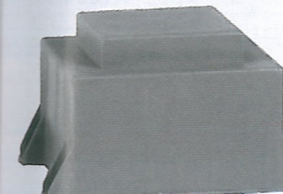
**Type 54 - 10 VA**



Eff.: 80% Temp. rise ±35 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View (Footprint)
P10172	7,2	1,38	10,3	
P10272	2 x 7,2	2 x 0,69	2 x 10,3	
P10195	9,5	1,05	11,5	
P10295	2 x 9,5	2 x 0,525	2 x 13,6	
P10112	12,0	0,83	17,2	
P10212	2 x 12,0	2 x 0,415	2 x 14,6	
P10115	15,0	0,66	17,1	
P10215	2 x 15,0	2 x 0,33	2 x 21,5	
P10117	17,5	0,57	21,1	
P10217	2 x 17,5	2 x 0,285	2 x 25,0	
P10124	24,0	0,41	28,9	
P10224	2 x 24,0	2 x 0,205	2 x 28,6	

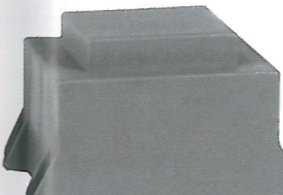
**Type 60 - 15 VA**



Eff.: 83% Temp. rise ±38 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View (Footprint)
P15172	7,2	2,08	8,7	
P15272	2 x 7,2	2 x 1,04	2 x 9,5	
P15195	9,5	1,57	11,8	
P15295	2 x 9,5	2 x 0,785	2 x 11,9	
P15112	12,0	1,25	14,7	
P15212	2 x 12,0	2 x 0,625	2 x 14,8	
P15115	15,0	1,0	18,6	
P15215	2 x 15,0	2 x 0,5	18,5	
P15117	17,5	0,85	23,2	
P15217	2 x 17,5	2 x 0,425	2 x 23,2	
P15124	24,0	0,62	29,7	
P15224	2 x 24,0	2 x 0,315	2 x 31,8	

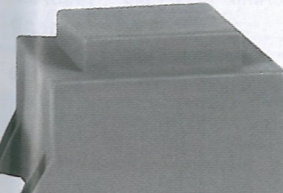
**Type 66 - 22 VA**



Eff.: 84% Temp. rise ±42 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View (Footprint)
P22172	7,2	3,05	9,1	
P22272	2 x 7,2	2 x 1,525	2 x 9,1	
P22195	9,5	2,31	11,1	
P22295	2 x 9,5	1,155	2 x 12,0	
P22112	12,0	1,83	14,2	
P22212	2 x 12,0	2 x 0,915	2 x 15,0	
P22115	15,0	1,46	17,7	
P22215	2 x 15,0	2 x 0,73	2 x 18,4	
P22117	17,5	1,25	20,8	
P22217	2 x 17,5	2 x 0,625	2 x 22,0	
P22124	24,0	0,91	27,5	
P22224	2 x 24,0	2 x 0,455	2 x 30,12	

**Type 78 - 40 VA**



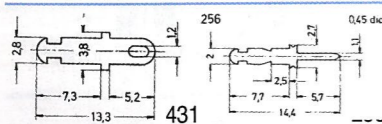
Eff.: 86% Temp. rise ±46 °C

Code	Secondary Voltage (V)	Secondary Current (mA)	Off-load Voltage (V)	PIN Configuration Top View (Footprint)
P40172	7,2	5,5	9,0	
P40195	9,5	4,2	10,8	
P40112	12,0	3,3	14,2	
P40115	15	2,6	17,5	
P40117	17,5	2,2	19,6	
P40124	24	1,6	27,2	

OTHER VOLTAGES AVAILABLE ON REQUEST

## TRANSFORMER PARTS

Description	VA	Bobbins Code	Housing Code	Lamination Code/kg
EI30/10.5/1ST All pins	1	A2000	A1000	A1031
EI30/10.5/2ST All pins	1	A2001	A1000	
EI30/12.5/1ST All pins	1	A2002	A1001	
EI30/12.5/2ST All pins	1	A2004	A1001	
EI30/15.5/1ST all pins	1.5	A2012		A1031
EI30/15.5/2ST pins on 1, 5, 6, 9, 10	1.5	A2007	A1001G*	
EI30/15.5/2ST pins on 1, 5, 6, 7, 9, 10	1.5	A2008		
EI30/15.5/2ST all pins	1.5	A2010		
EI30/18/2ST pins on 1, 5, 6, 7, 9, 10	1.5 or 2	A2011	A1001 S	
EI38/13.5/2ST pins on 1, 5, 6, 9, 10	2	EI38/13/5		A1032
EI38/13.5/2ST pins on 1, 5, 6, 7, 9, 10	2	EI38/13/6	A1002G*	
EI38/13.5/2ST all pins	2	EI38/13/A		
EI38/13.5/Shroud for EI38 Bobbins	2	EI38/13/S		
EI42/14.8/1ST	3	A2030	A1003G*	A1033
EI42/14.8/2ST	3	A2031		
*Standard colour grey. Red, blue and green also available.				
EI48/16.8/1ST	5.5	A2040	A1004	A1034
EI48/16.8/2ST	5.5	A2041		
EI54/18.8/1ST	10	A2050	A1005	A1035
EI54/18.8/2ST	10	A2051		
EI60/21/1ST	15	A2060	A1006	A1036
EI60/21/2ST	15	A2061		
EI60/25.5/2ST	15	A2062	No Housing	
EI66/23/1ST	22	A2065		A1037
EI66/23/2ST	22	A2066	A1007	
EI66/30/1ST	30	A2067		
EI78/27.5/2ST	40	A2070	A1008	A1038
Pins type 213		A2080		
Pins type 431		A2081		
Pins type 256		A2082		

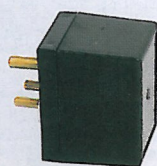


### Mains Transformer Boxes (black) with pins for 15A socket

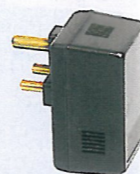
- Up to 10VA compact (80°C max. temp.)
- Up to 10VA compact to SABS IEC 60950
- Extender for use with A1014 for up to 15VA
- Up to 25VA with 15A plug
- Up to 25VA with plain cover

- A1014\*
- A1014BK-SABS
- A1015\*
- A1010\*
- A1009\*

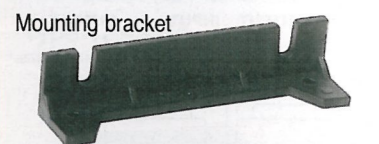
\*Add colour of box: ● BK (Black), ● R (Red), WH (White)



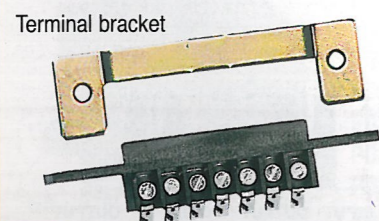
A1010



A1014



Mounting bracket



Terminal bracket

Size	Mounting Bracket (Reinforced Nylon)	Terminal Bracket
1"	A3000	A3007
1 1/4"	A3001	A3008
1 1/2"	A3002	A3009
1 3/4"	A3003	A3010

### Multitap terminal brackets with 7 x 27A Terminals and shroud

1 1/2"	A3005
1 3/4"	A3006

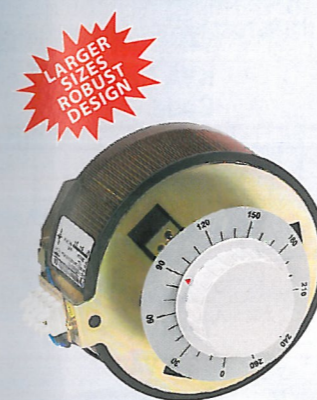


Terminals	Code
16Amp 2 Pole	M16A2P
3 Pole	M16A3P
30Amp 2 Pole	M30A2P
3 Pole	M30A3P

### Insulation sleeving/metre 130°C synthetic and glass fibre

Diameter	Code	Diameter	Code
0.5mm	SV-0.5	4.0mm	SV-4
1.0mm	SV-1	5.0mm	SV-5
2.0mm	SV-2	10mm	SV-10
3.0mm	SV-3		

## VARIABLE TRANSFORMERS



LARGER SIZES ROBUST DESIGN

### Open Type (Single Phase)

Code	Supply	Spare Knobs	Output V	A	Power KVA	Dimensions D x W x Ø	Motor Drive 230V
HSG260/2.5	230V	HSG-K6	0-260V	2.5A	0.65	98 x 142 x 117	HMA-M50
HSG260/4.5	230V	HSG-K8	0-260V	4.5A	1.17	120 x 149 x 125	HMA-M100
HSG260/10	230V	HSG-K10	0-260V	10A	2.60	120 x 197 x 153	HMA-M250
HSG0302/230	230V	HSG-K8	0-260V	13A	3.38	146 x 197 x 174	-
HSG260/15	230V	HSG-K8	0-260V	15A	3.90	116 x 262 x 226	-
HSG260/20	230V	HSG-K10	0-260V	20A	5.20	110 x 302 x 230	-
HSG260/30	230V	HSG-K10	0-260V	30A	7.80	110 x 345 x 340	-

For vertical or horizontal mounting. Unit supplied with Knob and scale plate

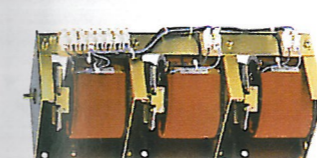
### Spare Scale Plate

HSG-L1 - For 2.5 Amp  
HSG-L2 - For 4.5, 10, 13 Amp

HSG-L3 - For 20, 30 Amp

### Open Type (Three Phase)

Code	Supply	Spare Knobs	Output V	A	Power KVA	Dimensions D x W x Ø	Motor Drive (230V)
HTG450/2.5	400V	HSG-K8	0-450V	2.5A	1.95		HMA-3/M50
HTG450/4.5	400V	HSG-K10	0-450V	4.5A	3.51		HMA-3/M100
HTG450/10	400V	HSG-K10	0-450V	10A	7.80		HMA-3/M250
HTG450/20	400V	HSG-K10	0-450V	20A	15.60		HMA-3/M400



### Enclosed Type (Single Phase)

Code	Supply	Output V	A	Power KVA	H x W x D
TDGC2-1KVA	230V	0-260V	4A	1.0	200 x 170 x 210
TDGC2-2KVA	230V	0-260V	8A	2.0	235 x 207 x 208
TDGC2-3KVA	230V	0-260V	12A	3.0	267 x 240 x 210
TDGC2-5KVA	230V	0-260V	20A	5.0	310 x 250 x 260



### Enclosed Type

Amps	Single Phase	Volts In	Volts Out	3 Phase	Volts In	Volts Out
4.5A	HSN260/4.5	230	260	-	-	-
8A	HSN260/8	230	260	HTN450/8	400	450
10A	HSN260/10	230	260	HTN450/10	400	450
15A	HSN260/15	230	260	HTN450/15	400	450
20A	HSN260/20	230	260	HTN450/20	400	450



HSN



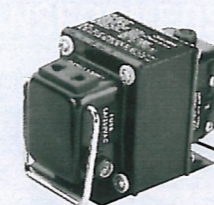
HTN

## SPECIAL TRANSFORMERS

### Appliance Transformers

- Transformer that converts 220/240VAC to 110/120VAC or vice-versa
- Overheat protected

Code	Watts	Input Volts	Output Volts
FNC-200	200	110-230V	230-110V
FNC-300	300	110-230V	230-110V
FNC-500	500	110-230V	230-110V
FNC-1000	1000	110-230V	230-110V

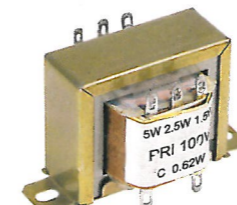


FNC type

### Audio Transformers

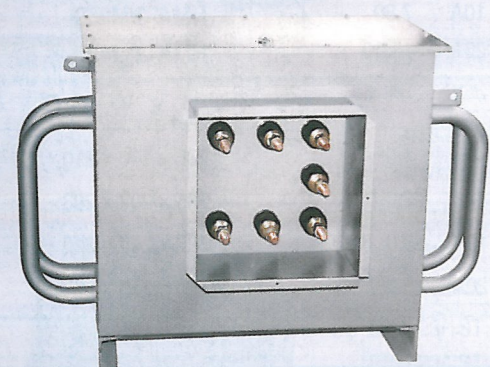
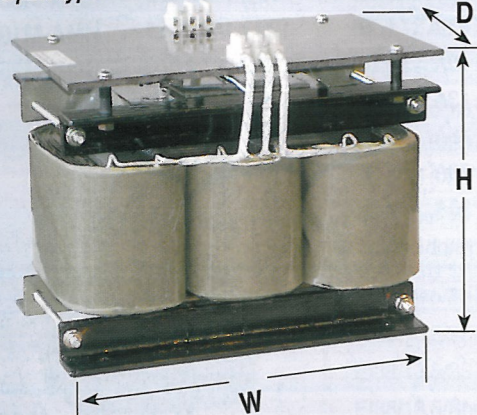
- For Public Address Systems

Code	Output	Supply	Tappings
AUT100/5	0-4-8 Ohm	100V	1.5, 2.5, 3.5, 5W
AUT100/12	0-4-8 Ohm	100V	12W



## POWER TRANSFORMERS THREE PHASE

Open type



Oil cooled type (cable box cover removed)  
Available in different colours (eg. Avocado Green/ Electric Orange)

Three Phase-open type transformer					Three Phase oil cooled transformer 'open bushings'	
KVA Rating Code	H	W	D	Weight	KVA Rating Code	
T-0.10KVA	170	140	100	3.5kg	T5KVA	
T-0.15KVA	170	140	100	4.5kg	T7.5KVA	
T-0.25KVA	210	150	110	6kg	T10KVA	
T-0.35KVA	210	150	110	7kg	T15KVA	
T-0.50KVA	220	170	140	9kg	T20KVA	
T-1KVA	250	230	150	12kg	T25KVA	
T-1.5KVA	250	250	120	15kg	T30KVA	
T-2KVA	215	225	145	22kg	T40KVA	
T-3KVA	225	225	165	30kg	T50KVA	
T-4KVA	225	235	185	36kg	T75KVA	
T-5KVA	255	245	185	50kg	T100KVA	
T-6.5KVA	275	265	195	40kg	T125KVA	
T-7.5KVA	285	265	195	60kg	T150KVA	
T-10KVA	315	310	200	80kg	T200KVA	
T-15KVA	359	346	200	90kg	T250KVA	
T-20KVA	650	450	350	120kg	T300KVA	
T-25KVA	650	450	350	165kg		
T-30KVA	700	500	350	200kg		
T-40KVA	800	500	400	240kg		
T-50KVA	800	550	400	280kg		
T-75KVA	850	600	400	400kg		
T-100KVA	900	700	450	680kg		
T-125KVA	900	730	500	750kg		
T-150KVA	900	750	550	850kg		
T-200KVA	950	800	600	900kg		
T-250KVA	960	850	600	970kg		
T-300KVA	960	850	600	970kg		

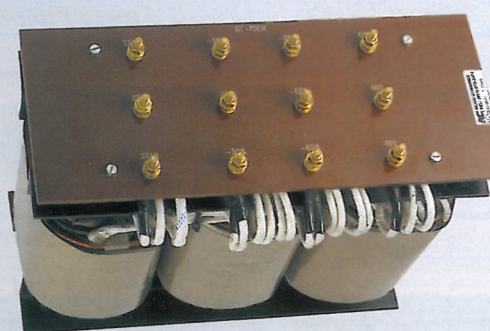
**NOTE:**  
ALL STANDARD PRICES ARE FOR UP TO 1000V ONLY.  
For above 1000V, prices on application.

### Optional Extras (for aircooled only)

Code	Transformer Size	Description	Code	Transformer Size	Description
T-C100	All	Cable Box	T-PER3	1.5-20kVA per phase	Perspex shield
T-B100	> 25kVA	Breather required for all oil cooled 3 phase transformers above 25kVA	T-SCN1	.1-.15kVA per phase	Earth screen and terminal
T-PER1	.1-.15kVA per phase	Perspex shield	T-SCN2	.25-1kVA per phase	Earth screen and terminal
T-PER2	.25-1kVA per phase	Perspex shield	T-SCN3	1.5-20kVA per phase	Earth screen and terminal

### Motor Starting Autowound Transformers

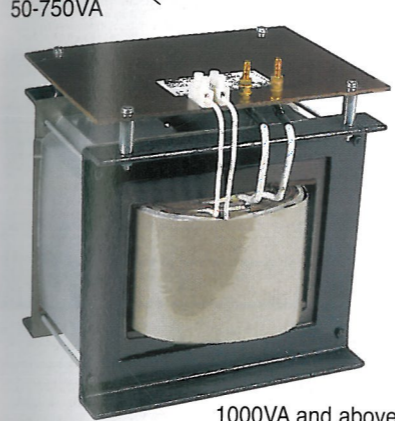
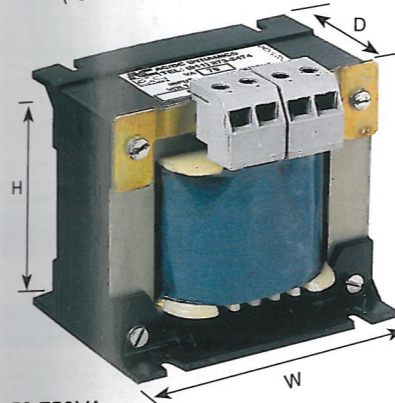
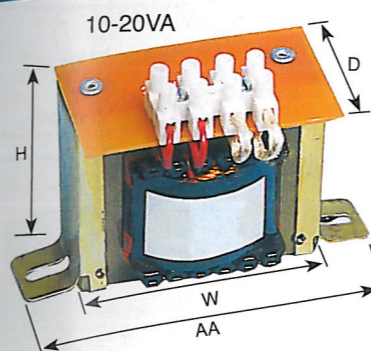
• 5 starts per hour • 50 & 65% taps



Code	400V Motor	H	W	D	Weight
AT-11	11kW	250	230	150	10kg
AT-15	15kW	250	230	150	12kg
AT-18.5	18.5kW	250	270	120	20kg
AT-22	22kW	250	270	120	22kg
AT-30	30kW	300	270	140	28kg
AT-37	37kW	300	270	140	30kg
AT-45	45kW	360	320	150	34kg
AT-55	55kW	360	320	150	36kg
AT-75	75kW	360	320	170	50kg
AT-90	90kW	400	320	180	60kg
AT-110	110kW	440	340	200	80kg

Larger sizes available on request

## POWER TRANSFORMERS SINGLE PHASE



### Single Phase-open type double wound

VA Rating Code	Dimensions (mm)			Weight kg
	W	AA	H	
T-10VA	60	100	65	0,4
T-20VA	80	80	85	1,1
T-25VA	80	75	80	1
T-30VA	80	80	80	1,1
T-40VA	85	90	75	1,5
T-50VA	85	85	90	1,5
T-75VA	100	90	95	2,2
T-100VA	100	95	90	2,2
T-125VA	105	100	105	2,9
T-150VA	105	100	105	2,9
T-175VA	120	120	90	3,3
T-200VA	105	115	95	3,6
T-225VA	120	120	90	4
T-250VA	105	105	115	3,8
T-300VA	125	115	110	5
T-350VA	125	120	115	5,1
T-400VA	138	135	110	5,8
T-500VA	160	135	140	8,3
T-600VA	150	150	150	8,5
T-650VA	138	135	140	8,5
T-750VA	140	140	150	10,2
T-1000VA	190	190	150	18,5
T-1500VA	190	190	150	18
T-2000VA	210	220	150	15
T-2500VA	190	190	170	17
T-3000VA	190	190	180	20
T-4000VA	210	210	190	24
T-5000VA	230	240	210	29
T-7500VA	270	270	230	43
T-10000VA	270	270	250	50
T-15000VA	340	350	260	55

**Standard Voltages**

230/12V	400/24V	525/24V
230/24V	400/48V	525/110V
230/48V	400/110V	525/230V
230/110V	400/230V	

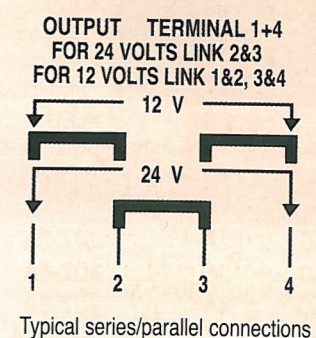
ex stock 20-600VA

### DIN TRANSFORMERS



All above power transformers from 25-500VA can be supplied for direct mounting onto 35mm DIN Rail. To order, add prefix D. Example DT-100VA M1.

### Standard Multitaps



VA Rating	Codes	
	Pri: 0-230-400V Sec: 12-24V Terms: 0-12 0-12	Pri: 0-400-525V Sec: 115-230V Terms: 0-115 0-115
25VA	T-25VA M1	*T-25VA M2
50VA	T-50VA M1	*T-50VA M2
100VA	T-100VA M1	*T-100VA M2
150VA	T-150VA M1	*T-150VA M2
200VA	T-200VA M1	*T-200VA M2
300VA	T-300VA M1	*T-300VA M2
500VA	T-500VA M1	*T-500VA M2

**NOTE:**  
ALL VA RATINGS ARE AT AMBIENT TEMPERATURE 25°C

### NB. ALL PRICES UP TO 1000V ONLY

- Autowound Transformers and other voltages manufactured to your order.
- Isolation Transformers include earth screen and terminal and are available in all the above sizes.

### Optional Extras

Code	Description	Transformer Size
T-EX1	Extra Tapping	Under 25A
T-EX2	Extra Tapping	25-50A
T-EX3	Extra Tapping	Above 50A
T-PER1	Perspex Terminal Shield	Up to 200VA
T-PER2	Perspex Terminal Shield	225VA to 1kVA
T-PER3	Perspex Terminal Shield	1.5-20kVA
T-SCN1	Earth Screen & Terminal	Up to 200VA
T-SCN2	Earth Screen & Terminal	225VA to 1kVA
T-SCN3	Earth Screen & Terminal	1.5-20kVA

## UNREGULATED POWER SUPPLIES



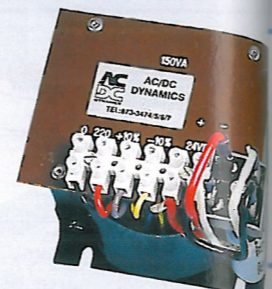
- IP20
- Ripple  $\leq 5\%$
- Fuse Protection
- LED

Input	Output 24VDC	Code
220VAC	2A	JDZ-2A
220VAC	5A	JDZ-5A
220VAC	8A	JDZ-8A
220VAC	10A	JDZ-10A
3 Phase 400VAC	20A	JDZ-20A

VA	Code with rectifier + capacitor	Output		Code with rectifier only
		12VDC	24VDC	
25VA	T- 25VDC/*	2A	1A	T- 25VR/*
50VA	T- 50VDC/*	4A	2A	T- 50VR/*
100VA	T- 100VDC/*	8A	4A	T- 100VR/*
150VA	T- 150VDC/*	12A	6A	T- 150VR/*
200VA	T- 200VDC/*	16A	8A	T- 200VR/*
250VA	T- 250VDC/*	20A	10A	T- 250VR/*
300VA	T- 300VDC/*	25A	12A	T- 300VR/*
400VA	T- 400VDC/*	32A	16A	T- 400VR/*
500VA	T- 500VDC/*	40A	20A	T- 500VR/*
750VA	T- 750VDC/*	62A	31A	T- 750VR/*
1000VA	T-1000VDC/*	83A	41A	T-1000VR/*

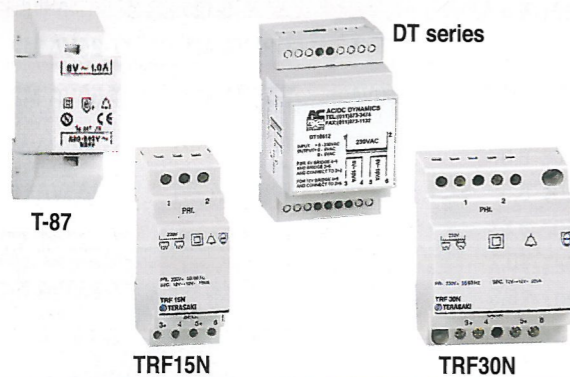
Primary: 110, 230, 400 or 525VAC  
 Secondary: \*12 or 24VDC } to be specified

**Applications:**  
 VDC: Contactors, relays and valves.  
 VR: Brakes & Clutches only.



Type VDC

## SPECIAL TRANSFORMERS



DT series

**Bell Transformers** • Double wound, IP20 • DIN mounting

Code	Input volts	Output volts	VA
T-87	230V	8	8
DT10212	230V	0-12 0-12 (0-24)	10
DT10612	230V	0-6 0-6	10
DT15212	230V	0-12 0-12 (0-24)	15
DT15612	230V	0-6 0-6	15
T-208	230V	0-12 0-12 (0-24)	24

Other voltages manufactured to order.

TRF15N	230V	12-0-12	15
TRF30N	230V	12-0-12	30

**Swimming Pool Lighting Transformers**

Code	Input Volts	Output Volts	VA
Complete with end cover & terminals			
SP-120VA	230V	12V	120VA
SP-300VA	230V	12V	300VA

With flying leads only (open type)

SP-120VA Open	230V	12V	120VA
SP-300VA Open	230V	12V	300VA

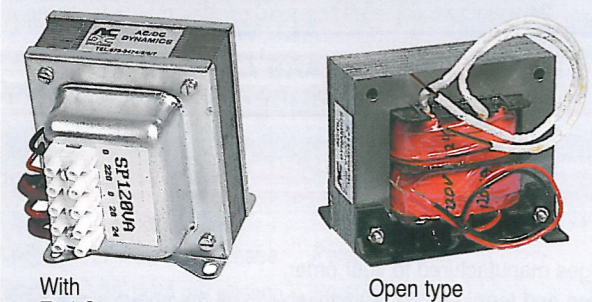
With flying leads (open type) c/w Thermal Cut-out

SAB-120VA	230V	12V	120VA
SAB-300VA	230V	12V	300VA

**Boiler Inspection Transformers**

In Steel enclosure with 2 x 5A socket outlets. Size 130H x 177W x 200D

Code	Input Volts	Output Volts	VA
BOT-125	230V	32VAC	125VA
BOT-250	230V	32VAC	250VA
BOT-400	230V	32VAC	400VA

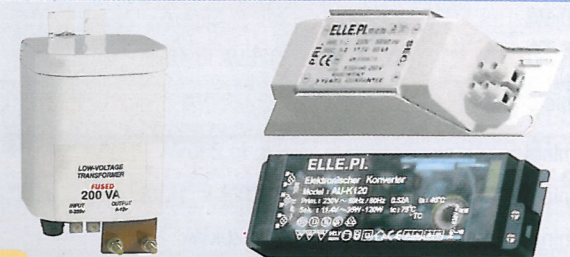


With End Covers

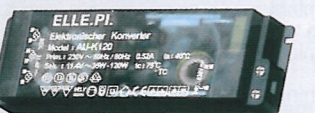
Open type



BOT-250



LOW VOLTAGE TRANSFORMER



Isolation Converter

For a Full Range of Lighting Transformers See Page 515.

## REGULATED POWER SUPPLIES

Amps	Code 5VDC	Code 12VDC	Code 24VDC	Specifications
<b>8-PIN Plug-in</b>				
100mA	PSU/0,1/5	PSU/0,1/12	PSU/0,1/24	Supply voltage 110V or 230V (to be specified) Overload protection Short circuit protection
300mA	PSU/0,3/5	PSU/0,3/12	PSU/0,3/24	

**DIN rail mount**

Amps	Code 5VDC	Code 12VDC	Code 24VDC	Specifications
100mA	EPSU/0,1/5	EPSU/0,1/12	EPSU/0,1/24	Supply voltage: 110V or 230VAC (to be specified) Overload protection Short circuit protection
500mA		PSU/0,5/12	PSU/0,5/24	
1A	PSU/1/5	PSU/1/12	PSU/1/24	Adjustable output: 5V = 1.5V-7VDC 12V = 1.5V-14VDC 24V = 1.5V-26.4VDC
2A	PSU/2/5	PSU/2/12	-	

**Robust DIN Power Supplies**

Amps	Code 12V	Code 24V	Input	Output	Adjustment	Size W x H x D
<b>Single Phase</b>						
2A	-	DR-4524	100-240VAC	24VDC	$\pm 10\%$	76 x 93 x 65
2.5A	-	DR-6024	100-240VAC	24VDC	-	76 x 90 x 56
3.2A	-	DR-75-24	100-240VAC	24VDC	$\pm 10\%$	56 x 125 x 110
4.2A	-	DR-10024	100-240VAC	12VDC	-	98 x 90 x 56
3.5A	DR-4512	-	100-240VAC	12VDC	-	77 x 90 x 65
5.0A	DR-6012	-	100-240VAC	24VDC	-	76 x 90 x 56
7.5A	DR-10012	-	100-240VAC	12VDC	-	98 x 90 x 56

**zamel** **Switch Mode Power Supplies**

Supply voltage 190 to 260VAC 50/60Hz

Code (12VDC)	Amps	Rated Power	Dimensions
ZIM-12/08	0.8A	10W	1 Mod (17.5mm)
ZIM-12/12	1.2A	15W	2 Mod (35mm)
ZIM-12/25	2.0A	24W	3 Mod (53mm)
PSM60-12	5A	60W	5 Mod (88mm)

Code (24VDC)	Amps	Rated Power	Dimensions
ZIM-24/04	0.4A	10W	1 Mod (17.5mm)
ZIM-24/06	0.6A	15W	2 Mod (35mm)
ZIM-24/12	1.0A	24W	3 Mod (53mm)
PSM60-24	2.5A	60W	5 Mod (88mm)

• Switch Mode Supplies are stabilised power supplies that are smaller and lighter compared to traditional power supplies and have a more stable output voltage.

**Features:**

- Available in 12V and 24VDC.
- Max output current: 7.5A (at 12V)
- No load resistance
- DIN rail Mounting
- Operating Temperature -20° to 85°C

**Stabilised Power Supplies**

• Supply voltage 230VAC 50/60Hz

Code	Output Voltage	Amps	Dimensions
ZSM-11	3, 5, 9, 14, 18, 24VDC	125mA	3 Mod (53mm)
ZSM-12	12VDC	250mA	3 Mod (53mm)
ZSM-24	24VDC	125mA	3 Mod (53mm)

**Features:**

- Voltage regulator with thermal protection and current limiter.
- Power supply indication: LED
- DIN rail mounting
- Operating Temperature -20° to 85°C

**Transformers**

• Supply Voltage 230VAC 50/ 60Hz

• Rated Power: 15VA

Code	Rated Secondary Voltage	Rated Secondary Current	Dimensions
TRM-8	8VAC	1.88A	3 Mod (53mm)
TRM-12	12VAC	1.25A	3 Mod (53mm)
TRM-24	24VAC	0.625A	3 Mod (53mm)
TRM-358	3/ 5/ 8VAC	5/ 3/ 1.88A	3 Mod (53mm)

**Features:**

- Short circuit and overload protection
- Inner thermal protection
- DIN rail mounting
- Thermal Insulation Class: B (120DC)

## VARIABLE POWER SUPPLIES



DF1730SL-5A  
DF1750SL-5A



PROVA-8000



DF1731SL3A Dual PSU

### Single Output Power Supplies

Code	Voltage	Current	Parallel	Indication
DF1730SL-5A	0-30VDC	0-5A	-	Digital
DF1730SL-10A	0-30VDC	0-10A	-	Digital
DF1730SL-20A	0-30VDC	0-20A	-	Digital
DF1750SL-5A	0-50VDC	0-5A	-	Digital
PROVA-8000	0-40VDC	0-5A	-	Digital

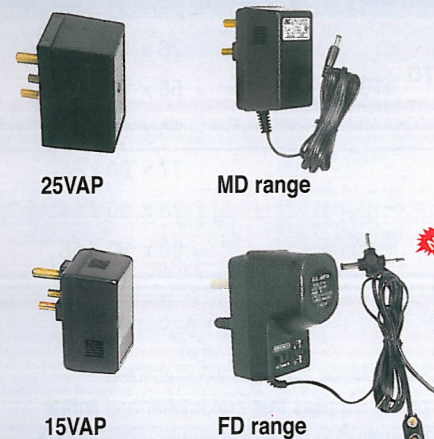
### Dual Output Power Supplies

Code	Voltage	Current	Parallel	Indication
DF1731SL3A	2 x 0-30VDC	2 x 0-3A	6A	Digital
DF1731SL10A	2 x 0-30VDC	2 x 0-10A	20A	Digital

(Dual-output) (0-60VDC) Series connection  
(0-30VDC) Parallel connection  
Supply Voltage: 230VAC  
• Ripple < 1mV RMS  
• Load regulation 1%  
• Current limit

## MAINS POWER SUPPLIES

### Unregulated, Plugs into 15Amp Socket Outlet



Code	Volts	Amps	Output Connection
MD1606-*	230VAC to 6VDC	1.6Amp	*Barrel plug or terminal
MD1009-*	230VAC to 9VDC	1.0Amp	*Barrel plug or terminal
MD1012-*	230VAC to 12VDC	1.0Amp	*Barrel plug or terminal
MD0812-*	230VAC to 12VDC	0.8Amp	*Barrel plug or terminal
25VAP-24-*	230VAC to 24VAC	1.0Amp	*Barrel plug or terminal
12VAP-24-*	230VAC to 24VAC	0.5Amp	*Barrel plug or terminal
15VAP-12-*	230VAC to 12VAC	1.2Amp	*Barrel plug or terminal
15VAPL-16-*	230VAC to 16VAC (C/W LED)	0.9Amp	*Barrel plug or terminal
15VAP-24-*	230VAC to 24VAC	0.62Amp	*Barrel plug or terminal
FD-5002T	230VAC to 1.5/3/4.5/6/7.5/9/12VDC	0.5Amp	Multi plug
FD-1002T	230VAC to 1.5/3/4.5/6/7.5/9/12VDC	1.0Amp	Multi plug

\*Barrel plug inside Ø size to be specified: 1.4, 2.1, 2.5 or T for terminal.  
Standard plug wiring + Internal - External  
Other voltages made up to your specification.

### Unregulated, Plugs into 2 Pin Euro Socket - Input volts 230VAC



Code	Output volts	Amps	Code	Volts	Amps
EU0930 2.1	9VDC	300mA	EU-5002T	230VAC to 1.5/3/4.5/6/7.5/9/12VDC	0.5A
EU0950 2.1	9VDC	500mA	EU-1002T	230VAC to 1.5/3/4.5/6/7.5/9/12VDC	1.0A
EU1215 2.1	12VDC	150mA			
EU1230 2.1	12VDC	300mA			
EU1250 2.1	12VDC	500mA			
EU12100 2.1	12VDC	1000mA			
EU12200 2.1	12VDC	2000mA			
EU2430 2.1	24VDC	300mA			
EU2450 2.1	24VDC	500mA			

### Regulated, Plug-in power supply

100 - 240VAC (Switch Mode Type)



Code	Amps	Output volts	Code	Amps	Output volts
S1205	0.5A	12VDC	S1205Z		
S1210	1A	12VDC	S1210Z		
S1220	2A	12VDC	S1220Z		
-	0.5A	24VDC	S2405Z		
-	1A	24VDC	S2410Z		

Barrel Plug: inside Ø size: 2.1mm

### Regulated Bench Type Power Supplies (switch mode) - Input volts 100-240VAC

Code	Amps	Watts	Size	Code	Amps	Watts	Size
S1210D	1A	12W	86 x 48 x 30mm	S2410D	1A	24W	98 x 47 x 32mm
S1220D	2A	24W	98 x 47 x 31mm	S2420D	2A	48W	110 x 56 x 33mm
S1230D	3A	36W	110 x 56 x 33mm	S2430D	3A	72W	117 x 53 x 30mm
S1240D	4A	48W	110 x 56 x 33mm	S2440D	4A	96W	150 x 65 x 38mm
S1250D	5A	60W	112 x 54 x 32mm	S2450D	5A	120W	150 x 65 x 38mm

Input voltage: 90 - 264VAC  
Short Circuit protection  
Overload protection

Load Regulation: ±5%  
Line Regulation: ±1%

## REGULATED POWER SUPPLIES



200mA to 750mA 1.25A to 5A

### Enclosed DIN rail mount

Amps	Code 5VDC	Code 12VDC	Code 24VDC
200mA	-	-	DRA05-24
400mA	-	DRA05-12	DRA10-24
750mA	DRA05-5	DRA10-12	DRA18-24
1.25A	DRA10-5	DRA18-12	DRA30-24
2.5A	-	DRA30-12	DRA60-24
5A	DRA30-5	DRA60-12	DRA120-24
10A	-	DRA120-12	DRA240-24
20A	-	DRA240-12	DRA480-24

Supply voltage: 90-265VAC  
Output Accuracy: ±2%  
Load Regulation: ±2%  
Voltage Adjustable: 5V: 5-5.5V  
12V: 12-14V  
24V: 24-28V  
Output Short Circuit Protection  
Derating from 50 to 70°C Derate by 30%  
Power ready connection output

Parallel function only available on DRA480-24



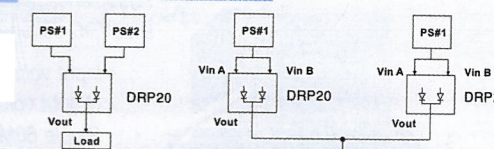
DRP10

DRA480

### Code Description

DRP10 10Amp Redundant Module  
DRP20 20Amp Redundant Module with ready relay contacts & LED for input failure alarm

### Redundant Application



1+1 Redundancy: Using 1 more PS as the redundant unit.

Single Use: Connecting only one PS to one DRP20 to reduce the stress of the diodes and hence increase the reliability.

### Power Supply with DC Backup System

Amps	Code 5VDC	Code 12VDC	Code 24VDC
17.5A	-	-	DRA480-24ADCB

### DIN Rail Mount



3/5A

5/10A

40A/80A

### DIN rail mount

Amps	Code 5VDC	Code 12VDC	Code 24VDC	Code 48VDC
3A	DPSU/3/5	DPSU/3/12	DPSU/3/24	-
5A	DPSU/5/5	DPSU/5/12	DPSU/5/24	DPSU/5/48
10A	-	DPSU/10/12	DPSU/10/24	DPSU/10/48
20A	-	DPSU/20/12	DPSU/20/24	DPSU/20/48
40A	-	DPSU/40/12	DPSU/40/24	-
80A	-	DPSU/80/12	-	-

Supply voltage: 100-240VAC  
Short circuit protection, auto recovery overload protection  
Ripple: 100mVp-p  
Line regulation: 1%  
Load regulation: 1%  
Adjustable output:  
5V = 4.5V-5.5V  
12V = 10.8-14VDC  
24V = 21.6-26.4V

### Chassis mount

Amps	Code 5VDC	Code 12VDC	Code 24VDC
10A	PSU/10/5	PSU/10/12	PSU/10/24
20A	-	PSU/20/12	PSU/20/24
25A	-	PSU/25/12	-

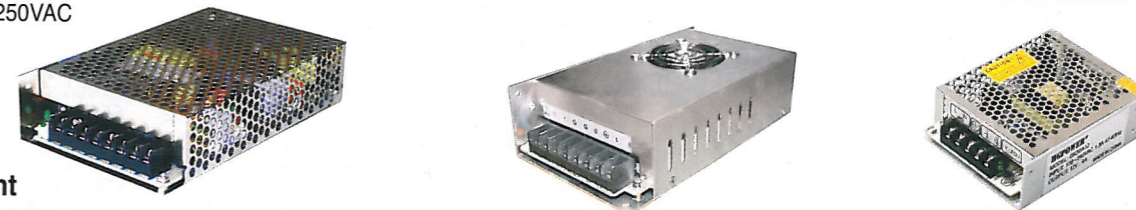
### Three Phase DIN Power Supplies

Overload protection auto recovery  
Short circuit protection auto recovery  
Over voltage protection latch off

Amps	Code 24VDC	Input	Output	Adjustment	Size
10A	SL10/3	340-500VAC	24VDC	23-27V	238 x 153 x 110
20A	SL20/3	340-500VAC	24VDC	23-27V	288 x 210 x 143
40A	SL40/3	340-500VAC	24VDC	23-27V	288 x 210 x 143

## BOX TYPE SWITCH MODE POWER SUPPLIES

Supply Volts 90 - 250VAC



### Chassis mount

Watts	Code 12VDC	Amps	Code 24VDC	Amps	Code 48VDC	Amps	Size (mm) W x L x H	Watts	Code 5VDC	Amps	Size
25W	SNP-25W/12	1.7A	SNP-25W/24	1.1W	-	-	84 x 58 x 38	15W	SNP-15W/5	3	70 x 39 x 31
40W	SNP-40W/12	3.5A	SNP-40W/24	1.8W	-	-	129 x 98 x 38	25W	SNP-25W/5	5	84 x 58 x 38
60W	SNP-60W/12	5A	SNP-60W/24	2.5A	SNP-60W/48	1.25A	159 x 98 x 38	60W	SNP-60W/5	10	129 x 98 x 38
100W	SNP-100W/12	8.5A	SNP-100W/24	4.5A	-	-	199 x 98 x 38	100W	SNP-100W/5	20	199 x 98 x 38
120W	SNP-120W/12	10A	SNP-120W/24	5A	SNP-120W/48	2.5A	199 x 98 x 38				
150W	SNP-150W/12	12.5A	SNP-150W/24	6.2A	-	-	199 x 98 x 38				
200W	SNP-200W/12	16.5A	SNP-200W/24	8.3A	SNP-200W/48	4.2A	200 x 110 x 50				
250W	SNP-250W/12	20A	SNP-250W/24	10A	SNP-250W/48	5A	200 x 110 x 50				
350W	SNP-350W/12	30A	SNP-350W/24	15A	SNP-350W/48	7.5A	215 x 115 x 52				

• Overload protection  
• Short circuit protection  
• Output accuracy: 2%  
• Load regulation: 2%

## DC TO DC CONVERTERS



### Step-down DC/DC Converter 24VDC/12VDC

This series is designed to convert 20-28VDC voltage to 13.8VDC. Suitable for use with radios and other 12VDC equipment in 24VDC vehicles

- Input voltage: DC24V±4V. • Output voltage: 13.65~13.8VDC.
- Ripple < 5mV. • Load regulation: 3%.
- Input protection: over-voltage/current-limit/reverse polarity.

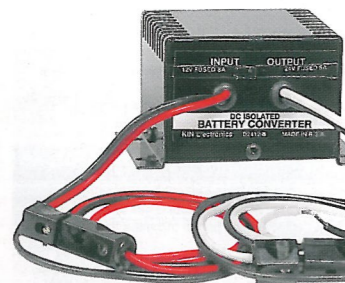
Code	Output	Surge	Fuse*
DF1714C	7A	10A	7A
DF1715C	15A	20A	15A
DF1716C	20A	25A	20A
DF1717C	25A	30A	25A
MSD500-12	40A	45A	40A

\*To be fitted when installing

### Step-up and Step-down DC/DC Converter

\*This series is designed to convert 9-16VDC voltage to 27.6VDC.

- Input voltage: 9-16VDC.
- Output voltage: 27.6VDC.
- Ripple 60MVPV



D2412-5



MSD100-12/24



MSD18-12

Code	Output Current	Surge	Input Volts	Output Volts
<b>Step-up</b>				
*D1224-6	4A	6A	9-16VDC	24VDC
D2424-5	5A	6A	16-35VDC	24VDC
MSD100-12/24	12V/8A	9A	10.5-16VDC	12-24VDC (Adjustable)

Code	Output Current	Surge	Input Volts	Output Volts
<b>Step-down</b>				
D4812-2	2A	3A	24-63VDC	13.8VDC
MSD18-12	1.5A	2A	12-28VDC	7.5/9/12VDC

Code	Output Current	Surge	Input Volts	Output Volts
<b>DC/DC Battery Charger</b>				
D2412-5	5A	5A	11-35VDC	13.8VDC
D1212-5C	5A	5A	9-16VDC	13.8VDC

### Portable/Rechargeable/Multi-Function Power bank/UPS/Inverter

Code	Watts
PS-300	300
PS-800	800
SP-JS005	900 C/W 300Psi compressor

### Accessories

HL-13	55Watts 12VDC. 150mm Ø
H3-12VDC 55W	Spare Lamp for HL-13
PS-BAT8	Spare battery for PS-800

Power bank is an emergency power supply as swift as UPS. When fully recharged, it can be used as a power source for electrical appliances during brown-out, such as Computer, Television, Fax, Audio, Fan, Electrical tools, etc. It can also start a car engine directly as a car battery.

**Features:** • Powerful 600Amp cranking output. • Heavy-duty jump-start cables AWG #5 for vehicles • Long Life Emergency/Working Light. • Regulated 3V, 6V and 9V, 2Amp Power Supply outputs for Notebook, Computer, CD player, Mobile Phone, Camcorder...

• LED displays for Full/Charge/Low/Good Indication. • 12V 18AH Sealed Lead-Acid rechargeable battery  
**Extra Features for PS-800:** • Fast Battery Charging by cigarette lighter DC cord in car, boat. • Dual 12V Cigarette lighter socket outputs



PS-800



PS-300



SP-JS005



HL-13

### Sealed Lead Acid Batteries

Code	Volts	Amp/Hour	Size (mm) L x W x H
SY612	6	1.2A/H	96 x 25 x 56
SY632	6	3.2A/H	125 x 33 x 72
SY640	6	4.0A/H	70 x 47 x 107
NEW SY640-S	6	4.0A/H	65 x 33 x 75
SY1245	12	4.5A/H	90 x 70 x 107
SY1270	12	7.0A/H	150 x 65 x 102
SY12012	12	12A/H	151 x 98 x 102
SY12024	12	24A/H	165 x 126 x 173

### Deep-Cycle Batteries

Code	Volts	Amp/Hour	Size (mm) L x W x H
SY12035	12	35A/H	187 x 127 x 200
SY12045	12	45A/H	234 x 127 x 200
SY12065	12	65A/H	257 x 172 x 200
SY12080	12	80A/H	352 x 175 x 226
SY120102	12	102A/H	328 x 171 x 219

### Battery Jumper Cables

Code/Pair	Amps	Length
OY-405	100 Amps	2.5m
OY-403	200 Amps	2.5m
OY-402	300 Amps	2.5m
OY-401	400 Amps	2.5m



SB212407

300A 2.5m Booster Cable in zip-up bag

SB212407X

300A 2.5m Booster Cable c/w gloves and 3.5m tow rope in zip-up bag

## BATTERY CHARGERS

Industrial automatic type (Standard supply voltage 230VAC)

Size	Open Type Dimensions	Open Type Code 12VDC	Open Type Code 24VDC	Enclosed Type Code 12VDC	Enclosed Type Code 24VDC
300mA	8 Pin plug in	TE12/0,3	-	-	-
3A	195 x 95 x 47	-	TE24/3N	ETE12/3	ETE24/3
5A	195 x 95 x 47	TE12/5N	AP24/5	ETE12/5	ETE24/5
10A	175 x 110 x 45	AP12/10	PM-1024	ETE12/10	ETE24/10
15A	210 x 110 x 45	AP12/15	PM-1424 (14A)	ETE12/15	ETE24/15
20A	225 x 110 x 50	AP12/20	PM-2024F	ETE12/20	ETE24/20
25A	370 x 180 x 80	-	PM-2524	ETE12/25	ETE24/25

All our battery chargers are for use with lead acid batteries



Enclosed type



8-Pin Plug-in type



TE12/5N  
TE24/3N



AP type



AP type



PM-1424



PM-5024

### Optional factory extras for enclosed type:

Mains failure relay BC100

Enclosed version features:

HE202 IP54 wall mounting panel with mains circuit breaker, on-off switch, ammeter, voltmeter, mains pilot light and test button.

### Multi-Stage Battery Chargers

#### 2-Stage Constant Voltage charging:

Initial charge current is held at maximum output. As battery gains charge and voltage rises towards the end-charge value the current ramps downward to a maintenance level at full charge.

#### 3-Stage Speed charging:

(1) *high-speed bulk charge:* initial charge current held at max output until voltage reaches setpoint above end-charge value. Battery attains 80% of full charge at rapid pace.

(2) *relaxed charge to 100% capacity:* charge current is slowly ramped down to end-charge level.

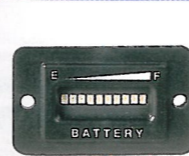
(3) *maintenance charge:* voltage drops to end-charge value, trickle current compensates for self discharge of battery.

Amps	Stage	12V Code	Supply Volts	Size	24V Code	Supply Volts	Size
3A	2	-	-	-	AP24/3	110/230VAC	150 x 110 x 40
5A	2	AP12/5	110/230VAC	150 x 110 x 40	AP24/5	110/230VAC	175 x 110 x 45
10A	2	AP12/10	90-265VAC	175 x 110 x 45	PM-1024	110/230VAC	200 x 180 x 77
15A	3	AP12/15	90-265VAC	210 x 110 x 45	PM-1424 (14A)	230VAC	280 x 209 x 85
20A	3	AP12/20	90-265VAC	225 x 110 x 50	PM-2024F	90-260VAC	280 x 209 x 85
25A	3	PM-2512	110/230VAC	280 x 209 x 85	PM-2524	110/230VAC	400 x 209 x 85
30A	3	PM-3512	110/230VAC	400 x 209 x 85	PM-3024	110/230VAC	400 x 209 x 85
50A	3	PM-5012	110/230VAC	400 x 209 x 85	PM-5024	110/230VAC	415 x 180 x 160

### 36V and 48V Battery Chargers

Amps	Stage	36V Code	Supply Volts	Size	48V Code	Supply Volts	Size
4A	3	PM-0436F	90-260VAC	180 x 88 x 47	PM-0348F (3A)	90-260VAC	180 x 88 x 47
8A	3	-	-	-	PM-0848	110/230VAC	280 x 209 x 85
20A	3	PM-2036F	90-260VAC	243 x 186 x 163	PM-2048F	90-260VAC	283 x 186 x 163

### Battery Indicators



ID-12V / ID24-36V  
ID-48V



IS24-80V



ISTR24-80V



V332-12VDC  
V332-24VDC



HC12-48V



CO12-80V

Indicator  
Indicator & Relay

- Automatic Battery Voltage selected
- Automatic zero-ing after charge is finished
- Flashing LED's indication when battery needs charging
- Relay output when battery reaches low level 1.73V/cell
- Dimensions: 53 x 32mm (rectangle type) Ø 57mm (round type)

Panel cutout:  
52mm Ø  
12VDC: 8-16VDC  
24VDC: 16-32VDC

• 99999.9 Hour Counter

## BATTERY CHARGERS

Domestic enclosed type (Standard supply voltage 230VAC)



Code	Description	Amps	Battery Volts	Size W x H x D
DF1773	Man charger	10A	12 or 24V	280 x 200 x 122
TC-2420	Man/Auto charger	20A	12 or 24V	220 x 200 x 150
MOTOBOX	Auto Charge	2.5A	12V	240 x 140 x 130
AUTOMATIC3000	Auto Charge	8A/12A	6V/12V	240 x 220 x 130
ENERBOX6	Econo battery charger	4A	12V	240 x 140 x 130
ENERBOX8	Econo battery charger	7.5A	6 or 12V	240 x 140 x 130
ENERBOX15	Econo battery charger	16A	12 or 24V	240 x 140 x 130

Heavy Duty domestic battery charger



Code	Battery Volts	To Charge Battery Size:		
		Low	Med	High
HDBC1800	12V/24V	17-70AH	40-70AH	70-140AH

- Jump start capability
- 3 Stage current setting; Low/Med/High Max. 20Amps
- Charging timer 1-14 hours
- Overcurrent/Short circuit/Reverse polarity and over temperature protection

Heavy Duty manual battery chargers - dual voltage



Code	Battery Volts	Rated Amps	Charge Current			Battery Size
			Slow	Fast	Boost	
THOR 320	12V	17A	7.5A	25A	180A	120/140Ah
	24V	14A	7.5A	20A	160A	
THOR 450	12V	33A	8.5A	57A	290A	140/160Ah
	24V	37A	11A	63A	220A	
THOR 650	12V	55A	15A	80A	400A	160/180Ah
	24V	56A	15A	90A	380A	

Heavy Duty Microprocessor Controlled Battery Charger - dual voltage

Code	Battery Volts	Rated Amps	Charge Current			Battery Size
			Slow	Fast	Boost	
THOR 350	12V	23A	5A	40A	180A	120/140Ah
	24V	23A	5A	40A	160A	

- Pre-charge before Jump Start for 10 - 15min
- Jump Start not to exceed 5 sec
- Supply Voltage 230VAC
- Slow/Fast/Boost charging
- Ammeter
- Overheat protection
- Reverse Polarity protection
- Fan cooling on THOR 350
- Protection fuses

Semi Professional Battery Chargers



Code	Battery Volts	Rated Amps	Charge Current			Battery Size
			Slow	Fast	Boost	
AGRI-20	12V	14A	14A	20A	-	100/130Ah
	24V	13A	12A	18A	-	
AGRI-30	12V	22A	16A	32A	-	120/140Ah
	24V	18A	14A	29A	-	
AGRI-210	12V	22A	17A	24A	140A	140/160Ah
	24V	18A	12A	17A	120A	
AUTOMATIC-30	12V	20A	11A	30A	-	140/160Ah
	24V	9A	7A	26A	-	

Power Supply for 12VDC Compressor driven fridges



Code	Description	Size
FPH14V5A	230/13.8VDC 5A surging up to 12A	150 x 74 x 145(D) mm

- Wide input voltage range
- Regulated output voltage
- High surge current
- Short circuit protected
- Over temperature protection
- Output current: 5A continuous 12A surge
- Operating ambient temperature: 0°C to +40°C

## BATTERY CHARGERS

Automatic battery chargers



Code	Output Voltage	Charging current	Battery Size
SMC-1203	12V	2A/8A	8-60Ah
SMC-1204T	12V	4A/12A	14-175Ah
SMC-1205Z	12V	8A/20A	35-250Ah
SMC-1206	12V	16A/30A	35-250Ah

Features

Fully automatic with micro-processor control, High frequency switch mode technology. Selectable output current levels. Smart-Logix - 4stage charging: Refresh > Fast charge > Absorption > Maintenance. Constant pulsing current pump: to optimize battery life and performance. Short circuit, Reverse polarity and Overload protection. Suitable for all GEL, AGM, VRLA, Deep cycle and Lead-acid batteries.

Multi Voltage Charger - 6V/ 12V/ 24V IP66



Code	Output Voltage	Charging current		Battery Size	
		6V/12V	24V	6V/12V	24V
SMC-1211	6V / 12V / 24V	3.6A	1.8A	10-120Ah	5-60Ah

Features

Suitable for all GEL, AGM, VRLA, Deep cycle and Lead-acid batteries. Smart voltage selection. Constant pulsing current pump: to optimize battery life and performance. One touch panel: Simply select the battery type and it will do the rest. LCD display: Shows battery diagnostic and charging status. Short circuit, Reverse polarity and Over temperature protection.

Three step Battery chargers 40W Plug-in Type 100-240VAC



Code	Output Voltage	Charging current	Voltage	
			Absorption	Trickle
111-06152-130	12V	1.5A	14.7V	13.8V
111-06272-131	6/12V	2.7A	7.3/14.7V	6.9/13.8V
111-12152-130	24V	1.5A	29.4V	27.6V

Features

The Charger outputs a constant charge current until the charge voltage has climbed to the absorption voltage. Starting from there the charge voltage is held constant for about 120min, allowing the charge current to decay to a small trickle current. At this point the charge voltage falls to the Trickle level, charging the battery with a small trickle current to maintain the charge.

Desktop Lead-acid battery charger 100-240VAC



Code	Output Voltage	Charging current	Voltage	
			Boost	Trickle
161-06802-130	12V	8A	14.7V	13.8V
161-12502-130	24V	5A	29.4V	27.6V

Features

Suitable for use with wheel chairs or Golf carts. 3-stage charging (As described above). LED indication of the State of charge, possible connection problems, Battery deep discharge.

Econo Automatic Battery Chargers



Code	Description
HD-6A	6A/12VDC Battery Charger
HD-10A	10A/12VDC Battery Charger

Thermal Overload Protection

DIN Mount Battery Chargers 12VDC



Code	Output Volts	Amps	Dimension
PSM12-12B	13.8VDC	1A	53W x 99H x 63D
PSM24-12B	13.8VDC	2A	53W x 99H x 63D

**RECHARGEABLE BATTERIES**

Ni-MH (Nickel Metal Hydride) no memory effect



Type	AA (1.2V)	AAA (1.2V)	(9V)
Code	N1800AA (1800mAh) N2300AA (2300mAh) N2500AA (2500mAh) N2800AA (2800mAh)	N750AAA (750mAh) N800AAA (800mAh) N1000AAA (1000mAh)	N1609V (160mAh) N2009V (200mAh) 1 piece
	4 pieces per blister pack		

Ni-CD (Nickel Cadmium)  
Industrial type



Type	D (1.2V)	AA (1.2V)
Code	ND6000D 6000mAh	ND900AA 900mAh
	1 piece	

**DISPLAY**

Display Rack (alkaline)



Code	20019 (Floor Rack)	98258 (Counter Top Box)
Consists of:	72 x AA 4 pack 36 x AAA 4 pack 5 x C 2 pack 4 x D 2 pack 7 x 9V 1 pack	24 x AA 4 pack Total = 96 batteries
Dimensions:	790 x 260 x 139	335 x 215 x 30

**ALKALINE/ LITHIUM BATTERIES**

Premium



Type	AAA	AA	C	D	9V
1 Pack Code	-	-	-	-	98215
2 Pack Code	98207	98208	98213	98214	98225
4 Pack Code	98209	98210	98223	98224	-

Long Lasting, Heavy Duty



Type	AAA	AA	C	D	9V
1 Pack Code	-	-	-	-	98101
2 Pack Code	98111	98112	98105	98106	98114
4 Pack Code	98121	98122	98117	98118	-

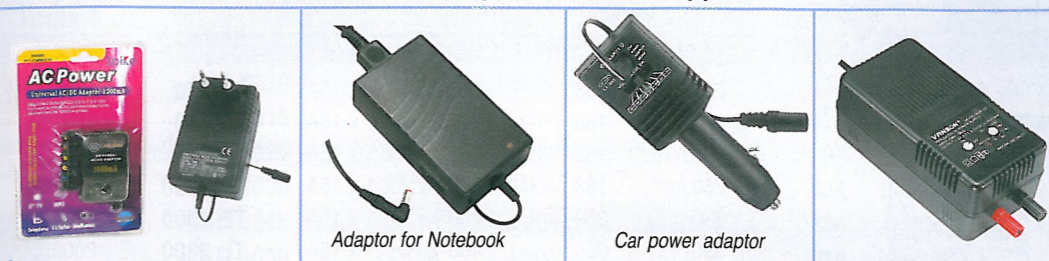
Maximum Power - automotive, garage door remotes, calculators, medical devices



Type	AC513	AC514	AC515	AC536
Description	Lithium 3V	Lithium 3V	Lithium 3V	Alkaline 12V alarm
Quantity	2 per pack			
Battery Type	CR2016	CR2025	CR2032	A23/12V

**BATTERY CHARGERS**

Switch Mode Universal Regulated Power Supplies



Code	PSF-1200ME	PSF-2500ME	PSNC-120M	PSA-1500M	SMP-2A	V-6833+AA/160
Output Volts	3/4.5/6/7.5/9VDC		15/16/18/19/20VDC	22/24VDC	3/4.5/6/9/12VDC	13.8VDC
Output	1.2A	2.5A	6A	5A	1.5A	2.5A 2.2A
Input Volts	100-240VAC		100-240VAC		11-14VDC	
Accessories	6 x detachable plugs					
Supplied with Charger	[Images of various AC/DC adaptors]					

Charger



Code	V-6833+AA/160
Features	<ul style="list-style-type: none"> <li>Fully charge 2 or 4 pcs Ni-MH 1800mAh AA or 750mAh AAA in 15 hours</li> <li>Safety timer controlled</li> <li>Direct plug-in type</li> <li>Blister pack</li> </ul>

Universal Power Adaptors



Code	PST-2005U	PSA-2005U	PSNC-80M	PST-2500ME	PST-1800ME	PST-1280M	PST-1200ME
Input	100-240VAC	12-14VDC	100-240VAC	100-240VAC	100-240VAC	100-240VAC	100-240VAC
Output	-	-	24VDC, 4500mA	3-8.4VDC, 2500mA	3-12VDC, 1800mA	3-12VDC, 1280mA	3-12VDC, 1200mA
USB Output	1 x 5V, 2000mA 2 x 5V, 1000mA	1 x 5V, 2000mA 2 x 5V, 1000mA	5V, 1000mA	5V, 2000mA	5V, 1.8A	5V, 1280mA	5V, 1.2A



Universal Ni-Cd and Ni-MH Chargers

Charger Only or Charger with Batteries | Charger with Discharger (no batteries)



Code	PB-500	C-412	C-513	V-1268N	CHB-7N9	V-2299
Charger only	-	-	-	-	-	-
Code	-	C-412-4F	C-513-4F	-	CHB-7N9-4F	-
Charger + 4 x Batteries + Car adaptor	-	4 x 2500mAh - AA	4 x 2500mAh - AA + Car adaptor	-	4 x 800mAh - AAA + Car adaptor	+ Car adaptor
Battery Type:	4xAA/AAA or 2xC	4xAA/AAA	4xAA/AAA	4xAA/AAA	4xAA/AAA/2x9V	4xAA/AAA/C&D + 9V x 2
Charge Time:	4 hours	2 hours	3-5 hours	4.5 hours	2 hours	Ni-Cd 5hrs, Ni-MH 7hrs
Features PB-500	<ul style="list-style-type: none"> <li>To charge 4xAA/AAA or 2xC alkaline or NiMH</li> <li>Enables the activation of remaining chemical in alkaline batteries</li> <li>LED indication of charging, good/ bad battery</li> <li>Micro-processor chip controlled charging with auto cut-off and safety timer.</li> </ul>					
Features C-412 & C-513	<ul style="list-style-type: none"> <li>Fully charge 2 or 4 pcs Ni-MH 2300mAh AA in 2 hours or 800mAh AAA in 4 hours</li> <li>Safety timer controlled</li> <li>Trickle charge after full charge</li> <li>Bad battery detection</li> <li>AC input for indoor use</li> <li>12V DC input from car battery (C-513 only)</li> </ul>					
Features V-1268N	<ul style="list-style-type: none"> <li>For AA and AAA sizes only.</li> <li>Automatically selects the correct charge/ discharge rate.</li> <li>Built-in discharge function - prevents "memory effect" - prolongs battery life.</li> <li>LED lamps indicate charge and discharge.</li> <li>Charge rate selector switch for different batteries:                             <ul style="list-style-type: none"> <li>AA 500mAh: 3 hours (approx)</li> <li>AA 600mAh/AAA 180mAh: 3 3/4 hours (approx)</li> <li>AA 700mAh/AAA 220mAh: 4 1/4 hours (approx)</li> </ul> </li> </ul>					
Features CHB-7N9	<ul style="list-style-type: none"> <li>Intelligent MCU controlled, special fuzzy control quick charging mode.</li> <li>Special design, detect &amp; rescue over-discharged battery automatically.</li> <li>More than 85%-90% high charging efficiency.</li> </ul>					
Features V-2299	<ul style="list-style-type: none"> <li>Powered by the supplied AC adaptor for home / office use or by the supplied 12VDC car adaptor.</li> <li>Battery life protected by negative delta V detection and timer protection.</li> <li>Automatic charging current selection for different sizes of batteries.</li> <li>LED display for: rapid charge, trickle charge and bad battery detection.</li> </ul>					

POWER SUPPLIES & TRANSFORMERS

POWER SUPPLIES & TRANSFORMERS

## AUTOMATIC VOLTAGE REGULATORS (A.V.R)

Output of this mains stabiliser is regulated to within 1% for input -15% to +20% of nominal range



### Constant Voltage Transformer (C.V.T.)

Dimensions (mm)			Outlet	Model	Rating VA	Standard Voltage*
Height	Width	Depth				
260	188	360	1 x 15A	TE 300	300	230/230
260	188	360	1 x 15A	TE 500	500	230/230
260	188	360	1 x 15A	TE 750	750	230/230
260	188	360	1 x 15A	TE 1000	1000	230/230
330	350	400	1 x 15A	TE 1500	1500	230/230
330	350	400	1 x 15A	TE 2000	2000	230/230
330	350	400	1 x 15A	TE 3000	3000	230/230
370	426	450	2 x 15A	TE 4000	4000	230/230
370	426	450	2 x 15A	TE 5000	5000	230/230
420	460	600	Terminals	TE 6000	6000	230/230
420	460	600	Terminals	TE 7000	7000	230/230
420	460	600	Terminals	TE 8000	8000	230/230

\* Specify voltage when ordering. Other voltages made on request.

### Single Phase Voltage Regulator (Output load regulation 1% or 3% selectable) Digital display

Code	Output Amps	Output Connector	Size (mm)	Kgs
SDC-1000VA	4.35A	Socket	230 x 120 x 150	6.2
SDC-1500VA	6.50A	Socket	260 x 140 x 170	7.3
SDC-2000VA	8.70A	Socket	260 x 140 x 170	7.9
SDC-3000VA	13A	Terminals	310 x 220 x 250	11
SDC-5000VA	21A	Terminals	310 x 220 x 250	13
SDC-8000VA	34A	Terminals	430 x 465 x 305	22
SDC-10KVA	43A	Terminals	430 x 465 x 305	27

### Single Phase Compact AVR (Output regulation 8%)

Code	Output Amps	Output Connector	Size (mm)	Kgs
SR-500VA	2.1A	Socket	241 x 169 x 90	1.78
SR-1000VA	4.35A	Socket	241 x 169 x 90	4.3
SR-1500VA	6.50A	Socket	261 x 169 x 114	5.2

### Specifications

- Technology: servo motor type transformer
- Input Voltage: 140VAC - 260VAC
- Input Frequency: 50/60Hz
- Output Voltage: 230VAC
- Efficiency: 98%
- Display: LED display input voltage/output voltage
- Protection: High voltage protection
- Low voltage protection
- High temperature protection
- Overload protection
- Delay time protection
- Short circuit protection

### Single Phase Voltage Regulator (Output load regulation 3%) Analogue display

Code	Output Amps	Output Connector	Size (mm)	Kgs
MVR-500VA	2.1A	Socket	248 x 170 x 158	3.8
MVR-1000VA	4.35A	Socket	263 x 180 x 170	6.2

### Features

- Protection: High voltage protection
- Low voltage protection
- High temperature protection
- Overload protection
- Servo motor type
- Input voltage range: 140-260VAC
- Output voltage: 220VAC
- Analogue input and output voltage display

### Single Phase Voltage Regulator (with zero - cross switching technology)

Code	Output Amps	Output Connector	Size (mm)	Kgs
E-600	1.3A	Socket	210 x 140 x 135	3.0
E-1200	2.6A	Socket	210 x 140 x 135	3.5
E-2400	5.2A	Socket	240 x 160 x 120	5.3

### Features

- Relay type automatic voltage regulator
- Input Voltage range: 140VAC - 280VAC
- Input Frequency: 50/60Hz
- Output Voltage: 230VAC
- Efficiency: 98%
- Output accuracy: ±5%
- Protection: High voltage protection
- Low voltage protection
- High temperature protection
- Time delay protection
- Short circuit protection

## THREE PHASE VOLTAGE REGULATOR

### 3 Phase Voltage Regulator (Output Load Regulation 2%) - Input Volts ±15% 400V + N

Code	Capacity		Current (220V)	Current (380V)	Size (W x D x H)	Weight
	KVA	KW				
ARD-3010	10KVA	8KW	26A	15A	280 x 380 x 620	50kg
ARD-3015	15KVA	12KW	39A	22A	280 x 380 x 620	58kg
ARD-3020	20KVA	16KW	52A	30A	360 x 460 x 810	85kg
ARD-3030	30KVA	24KW	78A	45A	360 x 460 x 810	100kg
ARD-3045	45KVA	36KW	118A	68A	360 x 460 x 810	115kg
ARD-3060	60KVA	48KW	157A	91A	420 x 550 x 960	140kg
ARD-3080	80KVA	64KW	210A	121A	420 x 550 x 960	165kg
ARD-3100	100KVA	80KW	263A	152A	420 x 550 x 960	230kg
ARD-3120	120KVA	96KW	315A	182A	550 x 800 x 1700	620kg
ARD-3150	150KVA	120KW	394A	228A	550 x 800 x 1700	750kg

### 3 Phase Voltage Regulator (Output Load Regulation 2%) - Input Volts ±30% 400V + N

Code	Capacity KVA	Capacity KW	Current (220V)	Current (380V)	Size (W x D x H)	Weight
HRD-45KVA	45KVA	36KW	118A	68A	800 x 500 x 1000	240kg
HRD-60KVA	60KVA	48KW	157A	91A	800 x 500 x 1000	280kg
HRD-80KVA	80KVA	64KW	210A	121A	800 x 500 x 1000	320kg
HRD-120KVA	120KVA	96KW	315A	182A	550 x 800 x 1700	620kg
HRD-150KVA	150KVA	120KW	394A	228A	550 x 800 x 1700	750kg
HRD-200KVA	200KVA	160KW	530A	300A	550 x 800 x 1700	900kg

### Specifications

- Output voltage range: ±1% ~ ±5% adjustable
- Output precision: standard ±2%
- Respond time: <0.042sec
- Overheat bypass: main coil temperature >130°C, transfer to bypass automatically
- Protection: input low voltage/ output high voltage/ open-phase
- Energy saving function: auto power cut off without loading
- Efficiency: ≥98% (at full load)
- Output low/ high voltage/ open-phase voltage protection
- Isolated voltage detection circuit. Settable voltage protection points. Auto cut off for abnormal voltage output and audible alarm.
- Resists unbalanced current
- Double lap winding design. Even when phase loading is 50% unbalanced, voltage drop between wires will not happen

### Features

- Low iron loss high magnetic intensity silicon steel, closed slots design
- High full groove ratio winding technique
- ARD series is the most reliable AVR with magnetoelectric technology.
- All these efforts make our AVR unique with lowest line loss and voltage drop. Moreover, compact size, light-weight, high efficiency and high reliability are their most significant characteristics. Non-contact design makes this AVR different to the traditional carbon brush or relay type AVR, without sparking/arc. We can say ARD series is the best voltage regulator for industrial usage.

## BATTERY MONITOR SYSTEM

MMBM-2 Intelligent battery monitor system is specially designed for daily battery monitoring and maintenance, composed of unit monitor and central monitor. The adopting of data control technology, RS485 interface and online monitoring system realizes the real time monitor, records the voltage, charge, discharge current and temperature of every battery. Unique online capacity analysis technology and alarm function to assist the user with abnormal battery indication, therefore reducing the workload of battery maintenance and improving the reliability of the system and the safety of testing.

Code	MMBM-2	
Application: Environment	Battery Type Power Supply Environment	12 V Battery DC: 160 VDC /DC-450VDC or AC: 220 Vac Temperature: -30 C ~ +60 C, Humidity: 0 ~ 95 %
	Current Testing	A: Range: Unit Group 0 -250 A B: Precision: Discharge Current +/- 3 A, Charge Current: +/- 1.5 A
	Unit Voltage Test	A: Range: 0-500 V B: Precision: +/- 2V C: Maximum 3 groups. Each group 4 -32 Cell's
Technical Specification	Dimension (D x W x H)	Central Monitor: 180 x 280 x 75mm Monitor Unit: 85 x 140 x 35mm
	Weight	Central Monitor: 1 kg Monitor Unit: 160 g
	Communication Speed	4800Bps

## VOLTAGE PROTECTION SWITCH



**Voltage Protection Switch** Disconnects if supply is outside 190-250V

Code	Output	Input Voltage	Outlets	Restart Delay	Size W x H x D	Features
AVS30A	230V 30Amp	170-270V	0	1-2min adj	130 x 195 x 50	• Over, under voltage and surge protection • LED Indication • 3 min time delay

## 15A VOLTAGE PROTECTION PLUG

For home and office use

**No more damaged equipment due to "brown-outs" (low voltage). Protect your fridge and vital equipment now!**

• Protects against over and undervoltage supply. • Protects against lightning. • Plugs into your 15Amp socket outlet.

**Normal working:** The relay is switched on and it supplies voltage to the output socket only if the input voltage is within safe limits. The green 'VOLTS OK' led is on. The input voltage is measured and the true RMS value is calculated. It is not just an average of the input voltage.

**Over voltage protection:** If the input voltage rises above 253V, the relay will switch off and the red 'HIGH VOLTS' led will come on. It will reset if the voltage drops below 248V.

**Under voltage protection:** If the input voltage drops below 190V the relay will stay on and the red 'LOW VOLTS' led will flash to indicate a momentarily low voltage. If the voltage doesn't recover after 3 seconds the relay will switch off and the 'LOW VOLTS' led will stay on. If the input voltage drops below 170V, the relay will switch off immediately without the 3 second delay and the 'LOW VOLTS' led will stay on. It will reset if the voltage rises above 195V.

**Delay:** When the unit is connected, it waits for 3 minutes (180 seconds) before switching the output on. Whenever it switches off (over or under volt) it will wait for 3 minutes before switching on again.



Code	Description	Specifications
VP15R	15A Red Housing	Overvoltage - drop out: 253V - reset: 248V Undervoltage - drop out: At 190V, 3 sec delay. At 170V inst. off - reset: 195V • Delay on reconnection: 180s • Lightning protection: 6.5kA, (Vc = 750V) • LED indicates supply connected • Relay: 16Amps @ 230V
VP15G	15A Grey Housing	
VP10G	16A Grey Housing c/w Schuko plug and socket and 1m cable.	



VP10G

## MOBILE POWER BACKUP SYSTEMS

**Mobile UPS** - Modified sine wave output 230VAC single phase  
To be used for home or office during power cutouts. All in one inverter/ charger/ auto changeover/ battery pack & trolley.

Code	Watts	Surge Watts	Back-up time at full load with internal battery	Back-up time with additional 110Ah battery	Back-up time with additional 4pc (110Ah) battery	Back-up time with additional 8pc (110Ah) battery box	Back-up time with additional 16pc (110Ah) battery box
EPS-1000B	1000W	2000W	1.2hrs	2.4hrs	6hrs	10.8hrs	22.8hrs
EPS-1500B	1500W	3000W	0.8hrs	1.6hrs	4hrs	7.2hrs	15.2hrs
EPS-2000B	2000W	4000W	0.6hrs	1.2hrs	3hrs	5.4hrs	11.4hrs
EPS-2000D	2000W	4000W	0.6hrs	1.2hrs	3hrs	5.4hrs	11.4hrs
PP-1500	1500W	3000W	1.6hrs	2.4hrs	4.8hrs	11.2hrs	24hrs
PP-2000	2000W	4000W	1.2hrs	1.8hrs	3.6hrs	8.4hrs	18hrs
PP-3000	3000W	6000W	0.8hrs	1.2hrs	2.4hrs	5.6hrs	12hrs

### Accessories

Battery Boxes		BAT-A4	BAT-A8	BAT-A16
Box Size (mm)		420 x 450 x 670	760 x 450 x 770	780 x 455 x 1360
Battery Code		SY120110	SY120110	SY120110

Modified sine wave output 210-230VAC  
Input voltage 12VDC  
Overload protection

**EPS Range:**

- 1 x 110Ah sealed Lead-Acid battery (maintenance free)
- LCD display indicating DC voltage and AC output watts
- 2 x 15A socket outlets
- Terminals for charging a second battery
- Size: 450 x 310 x 540mm (H)
- **EPS-2000D c/w 180W solar panel and 20A solar regulator for solar battery charging**

**PP Range:**

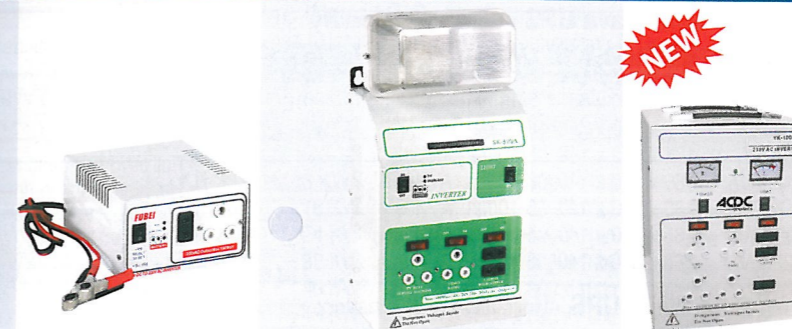
- 2 x 110Ah sealed Lead-Acid battery (maintenance free)
- LCD display indicating DC voltage and AC output watts
- 3 x 15A socket outlets
- 20A changeover switch
- Size: 400 x 500 x 900mm (H)

### Battery Box



Battery Box c/w Wire, 63Amp Switch and Terminals

## DC TO AC INVERTERS



### Description

- Low Voltage LED
- Overload LED
- Output Voltage 230VAC ±8%
- DC to AC Isolated
- Output short circuit protected by fuse
- PM-A-300-SA c/w bulkhead (excl. lamp)

### Recommended Applications

- Radio's, TV's, cellphone chargers, energy saving lamps, incandescent lamps, power tools.
- Calculation for power tool: Power Tools Wattage x3, e.g. 100W x 3 = 300W use 300W inverter.
- Not recommended for fluorescent fittings using iron core ballasts.

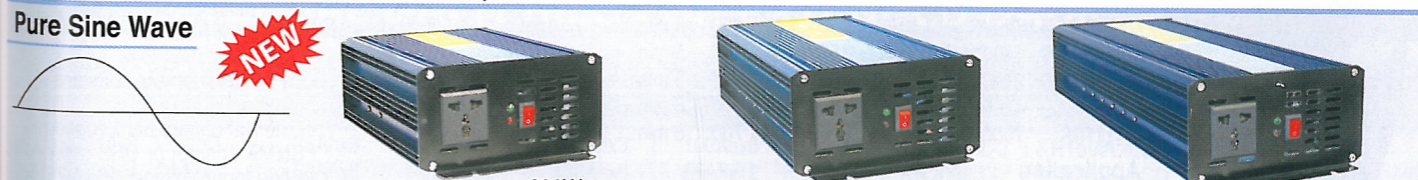
Code	PM-A-150-SA	PM-A-300-SA	PM-A-600-SA	PM-A-1000-SA
Output Power:	150W	300W	600W	1000W
Peak Power:	250W	500W	1000W	1500W
Input Volts:	10-14VDC	10-14VDC	10-14VDC	10-14VDC
Size (L x H x D):	150 x 190 x 170	420 x 215 x 140	420 x 215 x 140	340 x 335 x 250



	PM-A-150-SA	PM-A-300-SA	PM-A-600-SA	PM-A-1000-SA	PM-A-1200-SA	PM-A-1500-SA	PM-A-2500-SA
Max. Continuous Power	150W	300W	600W	1000W	1200W	1500W	2500W
Peak Power	300W	600W	1200W	2000W	1400W	2000W	4200W
Output Amps	0.625A	1.25A	2.5A	4.16A	5A	7.08A	10.41A
Code 12V	PM-A-0150AH12	PM-A-0300AH12	PM-A-0600AH12	PM-A-1000AH12	PM-A-1200AH12	PM-A-1500AH12	PM-A-2500AH12
Code 24V	-	-	PM-A-0600AH24	PM-A-1000AH24	PM-A-1200AH24	PM-A-1500AH24	PM-A-2500AH24
Dimensions L x W x H	115x101x63	189x101x63	245x176x85	360x236x83	330x275x110	480x275x110	510x275x110
Code 12V with charger				PM-A-1000CA12	PM-A-1200CA12	PM-A-1500CA12	PM-A-2500CA12
Code 24V with charger				PM-A-1000CA24	PM-A-1200CA24	PM-A-1500CA24	PM-A-2500CA24

**Specification**

- AC output voltage: 230V
- Regulation: +/- 0.5%
- Low battery alarm 12V: 10.0V
- Low battery alarm 24V: 19.8V
- All inverters supplied with battery cables
- Low battery shut-down 12V: 9.8V
- Low battery shut-down 24V: 19.2V
- Frequency (+/- 1%): 50Hz
- Efficiency: 95-98%
- Off load current: 0.07A
- Cooling fan
- Overload protection
- Input side short circuit protection
- AC output short circuit protection



	PM-A-150-SA	PM-A-300-SA	PM-A-600-SA	PM-A-1000-SA	PM-A-1200-SA	PM-A-1500-SA	PM-A-2500-SA
Max. Continuous Power	150W	300W	600W	1000W	2000W	3000W	3000W
Peak Power	300W	600W	1200W	2000W	4000W	6000W	6000W
Output Amps	0.6A	1.5A	2.8A	4.3A	8.69A	13A	13A
Code 12V	CZ-150S-12	CZ-300S-12	CZ-600S-12	CZ-1000S-12	CZ-2000S-12	CZ-3000S-12	CZ-3000S-12
Code 24V	-	-	CZ-600S-24	CZ-1000S-24	CZ-2000S-24	CZ-3000S-24	CZ-3000S-24
Dimensions L x W x H	180 x 105 x 60	260 x 165 x 85	260 x 165 x 85	328 x 165 x 85	416 x 165 x 85	397 x 150 x 153	397 x 150 x 153
Code 12V with charger			CZ-600S-12C	CZ-1000S-12C	CZ-2000S-12C		
Code 24V with charger			CZ-600S-24C	CZ-1000S-24C	CZ-2000S-24C		

**Specification**

- Regulation: 3% CZ type
- DC Input: 10-15VDC
- Charge current (5-8A)
- Working temperature: -10°C to +50°C
- No load power consumption: <0.5W
- Power saving recovery time: 5sec
- Protection: overload, short circuit, over/under input voltage & over temperature



Code A304

British Plug for Inverters

## LINE INTERACTIVE UPS

**NEW**



**Line-Interactive Modified Sine Wave UPS** - Compact. c/w battery

Code	Watts	VA	Size (mm)	Standby Time	No. of batteries
D-650	390W	650VA	145 x 320 x 65	5-10min	1
D-800	480W	800VA	145 x 320 x 65	5-10min	1
D-1000	600W	600VA	165 x 370 x 140	5-10min	2
D-1200	720W	1200VA	165 x 370 x 140	5-10min	2
D-1500	900W	1500VA	165 x 370 x 140	5-10min	2
UPS-1700D	1200W	1700VA	165 x 370 x 140	5-10min	3
UPS-2200D	1320W	2200VA	165 x 370 x 140	5-10min	3

- Software CD (included)
- AVR Function. Auto voltage regulator
- Over charge/discharge protection.
- Overload and circuit protection.
- LCD Display.
- Full load backup time 4mins.
- Half load backup time 16mins.
- Wide input voltage range: 140-275VAC
- Output voltage: 230VAC ± 10%.
- Spare batteries 12V/7AH SY1270

**Line-Interactive Pure Sine Wave UPS** - Units have built-in battery

**NEW**



Code	Watts	kVA	Size (mm)	Standby Time Full Load	Standby Time Half Load	DC Voltage
KI1000	700 W	1KVA	156 x 450 x 220	6min	10min	24
KI2000	1400 W	2KVA	198 x 525 x 347	6min	10min	48
KI3000	2000 W	3 KVA	198 x 525 x 347	6min	10min	72

- Digital Technology
- Intelligent battery Charger
- User - Friendly LCD Display
- Reliable online interactive design
- Fully Functional Protection
- Intelligent RS232 Communication Port
- Low Battery, Overload, short-circuit and over temperature
- Wide Input Voltage: 150-300 VAC
- Output voltage: 220/240 +/- 2%

- Wide Input Voltage: 150-300 VAC
- Output voltage: 220/240 v2%

**Application**

- Data Centre
- Commercial Facility
- Point of Sale
- Computer Room
- Hub and Network device
- Router

For Extended Operating Time please see UPS External Battery Cabinets on page 81.

## SERVER COMPACT UPS

**NEW**



**Online Compact Server UPS 1 phase** Without transformer. Units have built-in battery

Code	Watts	kVA	Size (mm)	Standby Time Full Load	Standby Time Half Load	DC Voltage
KR1000-J	700W	1KVA	440 x 500 x 2U	6min	15min	36
KR2000-J	1400W	2KVA	440 x 500 x 2U	5min	15min	72
KR3000-J	2100W	3 KVA	440 x 500 x 2U	5min	15min	96
KR6000-J	4200W	6 KVA	440 x 600 x 3U	5min	15min	192

- Output isolation transformer
- Wide input voltage range
- Full protection function
- High reliability and performance
- Intelligent RS232 Communication Port
- UPS management software (optional)
- External battery bank (optional)
- SNMP adapter or USB (optional)
- Wide Input Voltage: 165-275VAC
- Output voltage: 220/240 +/- 2%

**Application**

- Rack Device
- Data Centre
- Point of Sale
- Precision Instrument
- Computer Room
- Hub and Network device
- Router
- Commercial Facility Point

For Extended Operating Time please see UPS External Battery Cabinets on Page 81

## ONLINE UPS

**NEW**



**Pure Sine Wave UPS** Single phase 230V/230VAC. Without transformer. Units have built-in battery.

Code	Watts	kVA	Size (mm)	Standby Time Full Load	Standby Time Half Load	DC Voltage
KR1000 LCD	700W	1 KVA	156 x 400 x 220	6 min	15min	48
KR2000 LCD	1400W	2 KVA	198 x 490 x 347	5 min	15min	48
KR3000 LCD	2100W	3 KVA	198 x 490 x 347	5 min	15min	96
KR6000 LCD	4200W	6 KVA	255 x 640 x 700	5 min	15min	192
KR1110S	7000W	10 KVA	255 x 640 x 700	5 min	15min	192

- Output isolation transformer
- Wide input voltage range
- Full protection function
- High reliability and performance
- Intelligent RS232 Communication Port
- UPS management software (optional)
- External battery bank (optional)
- SNMP adapter or USB (optional)
- Wide Input Voltage: 165-275VAC
- Output voltage: 220/240 +/- 2%

**Application**

- IT Device
- Telecommunication
- Industry
- Data Centre
- Commercial Facility

For Extended Operating Time please see UPS External Battery Cabinets on Page 81

**Pure Sine Wave UPS** Three Phase (IN) to Single Phase (OUT) Without transformer. Unit only uses external standby battery connection in Battery Cabinet. 400VAC 3 Phase +N/ 230VAC Single Phase

Code	Watts	kVA	Size (mm)	Standby Time	DC Voltage
KR3110	7000W	10 KVA	255 x 640 x 700	See table for UPS BCP	192
KR3115	10.5KW	15 KVA	255 x 740 x 785	See table for UPS BCP	192
KR3120	16KW	20 KVA	255 x 740 x 785	See table for UPS BCP	348

- IGBT inverter and output isolation transformer
- High reliability DSP control
- Wide input voltage range
- DC cold start function
- Full protection function
- Intelligent RS232 /RS485 Communication Port.
- Intelligent battery monitor system - MMBM-2 (optional). See page 77.
- Wide Input Voltage : 380 +/-25 % VAC
- Output voltage : 220 +/- 1%

**Application**

- IT Device
- Telecommunication
- Industry
- Data Centre
- Commercial Facility

For Extended Operating Time please see UPS External Battery Cabinets on Page 81.

## ONLINE UPS

**NEW**



**Pure Sine Wave UPS** - Three Phase (IN) to Three Phase (OUT) Without transformer. Unit only uses external standby battery connection in battery cabinet. Battery & Battery Box to be ordered separately.

Code	Watts	kVA	Size (mm)	Standby Time	DC Voltage
KR-3310	8 KW	10KVA	400 x 800 x 1180	See table for UPS BCP	348
KR-3320	16 KW	20KVA	400 x 800 x 1180	See table for UPS BCP	348
KR-3330	24 KW	30KVA	400 x 800 x 1180	See table for UPS BCP	348
KR-3340	32 KW	40KVA	500 x 800 x 1600	See table for UPS BCP	348
KR-3350	40 KW	50KVA	500 x 800 x 1600	See table for UPS BCP	348
KR-3360	48 KW	60KVA	500 x 800 x 1600	See table for UPS BCP	348

- IGBT inverter and output isolation transformer
- 3 phases UPS allow 100% unbalance load
- Full DSP control, high reliability and performance
- Wide input voltage range
- DC cold start function
- Advanced battery charging management
- Intelligent fan speed control

**Pure Sine Wave UPS** - Three Phase (IN) to Three Phase (OUT) With Isolation Transformer

Code	Watts	kVA	Size (mm)	Standby Time	DC Voltage
FR-UK33080	64 KW	80KVA	1200 x 800 x 1600	See table for UPS BCP	348
FR-UK33100	80 KW	100KVA	1200 x 800 x 1600	See table for UPS BCP	348
FR-UK33120	96 KW	120KVA	1200 x 800 x 1600	See table for UPS BCP	348
FR-UK33160	128 KW	160KVA	1200 x 800 x 1600	See table for UPS BCP	348
FR-UK33200	160 KW	200KVA	1800 x 800 x 2000	See table for UPS BCP	348

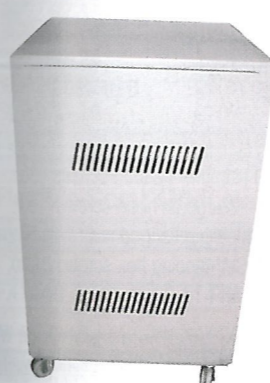
- ECO mode is available
- Intelligent RS232/RS485 Communication Port
- Advanced no-master-slave parallel technology (included)
- Intelligent battery monitor system - MMBM-2 (optional)
- Wide Input Voltage: 380/400 +/-20% VAC
- Output voltage: L-N 220/230 +/- 1%, L - L 380/400 +/- 1%

**Application**

- Computer Room
  - Precision Instrument
  - Data Centre
  - Intelligent Equipment
- Extended Operating Time please see UPS BCP  
For standby times, please see below

## EXTERNAL BATTERY CABINET

**NEW**



**C-Type Battery Cabinet, No Wheels**

Model	Layer	Product Size	Battery Capacity and quantity (Panasonic Size)	
C-1B	1	280 x 190 x 220	24AH/17AH	2/3 PCS
C-2	1	470 x 390 x 310	17/24/38/65/100AH	10/6/4/2/2 PC'S
C-6	2	420 x 450 x 600	17/24/38/65/100AH	20/16/12/6/6 PC'S
C-12	3	780 x 455 x 900	17/24/38/65/100AH	30/24/12/10 PC'S
C-20	4	950 x 455 x 1190	24/38/65/100AH	56/40/20/20 PC'S
C-24	4	1150 x 455 x 1190	65AH/100AH	24 PC'S
C-32	4	780 x 880 x 1190	65AH/100AH	32 PC'S

**A-Type Battery Cabinet, c/w wheels**

Model	Layer	Product Size	Battery Capacity and quantity (Panasonic Size)	
BAT-A4	2	420 x 450 x 670	17/24/38/65/100AH	20/12/8/4/4 PC'S
BAT-A8	2	760 x 450 x 770	17/24/38/65/100AH	36/20/16/8/8 PC'S
BAT-A16	4	780 x 455 x 1360	24/38/65/100AH	32/32/16/16 PC'S
BAT-A20	4	950 x 455 x 1360	24/38/65/100AH	40/40/20/20 PC'S

## EXTERNAL BATTERIES FOR EXTENDED BACK-UP TIME

Number of Batteries	30 mins standby	1 hr standby	2 hr standby	4 hrs standby	8 hrs standby	UPS KVA	Series size KR-L-J	Series size KR-L	Series size KR 31-L	Series size KR 33-L
	24Ahx3	38Ahx3	65Ahx3	100Ahx3	100Ahx6	1 KVA	KR1000 L-J	KR1000L-LCD	-	-
	24Ahx6	38Ahx6	65Ahx6	100Ahx6	65Ahx12	2 KVA	KR2000 L-J	KR2000L-LCD	-	-
	24Ahx8	38Ahx8	65Ahx8	100Ahx8	100Ahx16	3 KVA	KR3000 L-J	KR3000L-LCD	-	-
	24Ahx20	38Ahx20	65Ahx20	100Ahx20	100Ahx40	6 KVA	KR6000 L-J	KR6000L-LCD	-	-
	24Ahx20	65Ahx20	100Ahx20	100Ahx40	100Ahx60	10 KVA	-	KR-1110	KR3110	KR - 3310
	38Ahx20	100Ahx20	65Ahx40	100Ahx60	100Ahx80	15 KVA	-	-	KR3115	-
	65Ahx20	100Ahx20	65Ahx60	100Ahx60	100Ahx100	20 KVA	-	-	KR3120	KR - 3320
	65Ahx29	65Ahx58	100Ahx58	100Ahx87	-	30 KVA	-	-	-	KR - 3330
	100Ahx29	100Ahx58	100Ahx87	100Ahx116	-	40 KVA	-	-	-	KR - 3340
	65Ahx58	100Ahx87	100Ahx116	-	-	50 KVA	-	-	-	KR - 3350
	100Ahx58	100Ahx87	100Ahx116	-	-	60 KVA	-	-	-	KR - 3360
	100Ahx87	100Ahx116	100Ahx145	-	-	80 KVA	-	-	-	FR-UK33080
	100Ahx87	100Ahx145	-	-	-	100 KVA	-	-	-	FR-UK33100
	100Ahx116	500Ahx174	-	-	-	120 KVA	-	-	-	FR-UK33120
	500Ahx174	-	-	-	-	160 KVA	-	-	-	FR-UK33160
	-	-	-	-	-	200 KVA	-	-	-	FR-UK33200

For batteries see page 68.

Larger sizes available on request

## SOLAR PANEL MOUNTING SYSTEM

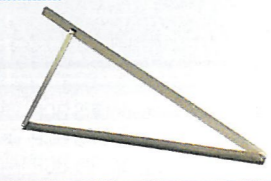
**NEW RANGE**

**Galvanised Pole Mounting Brackets**



Watts	1 Panel	2 Panel
5-10W	DM110	-
20W	DM120	-
65-85W	DM175	DM275

**Pre-Assembled Triangle Bracket**



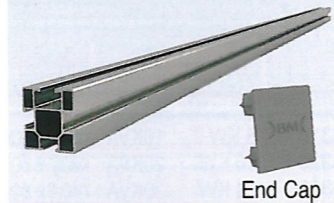
**BMF4301**

**Frame Bracket - 4m**



**BMF4302**

**Aluminium Profile - 4m**



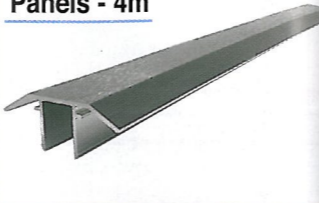
**Profile BMF4001**  
**End Cap BMF4008 (pack of 10)**

**Profile Joint**



**BMF4003**

**Cover For Gap between Panels - 4m**



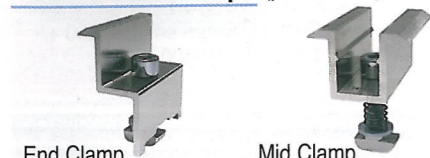
**BMF4100**

**Positioning Support**



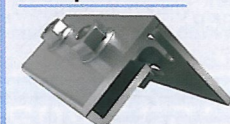
**BMF4110**

**Solar Panel Clamps (packs of 10)**



End Code	Module Thickness	Middle Code	Module Thickness
BMF4021	34	BMF4011	34 ÷ 37
BMF4022	35	BMF4012	38 ÷ 42
BMF4023	36	BMF4013	43 ÷ 47
BMF4024	38	BMF4014	48 ÷ 50
BMF4025	40		
BMF4026	42		
BMF4027	46		
BMF4028	48		
BMF4029	50		

**Clamp for Crimped Plate**



**BMF4501**

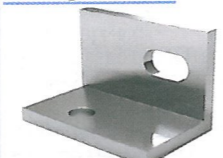
**Adj. Tile Hook**



**BMF4401**

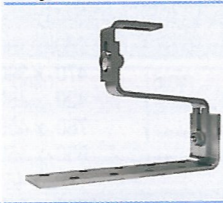
Fixing Plate: 150 x 55 x 5mm

**Fixing Bracket**



**BMF4002**

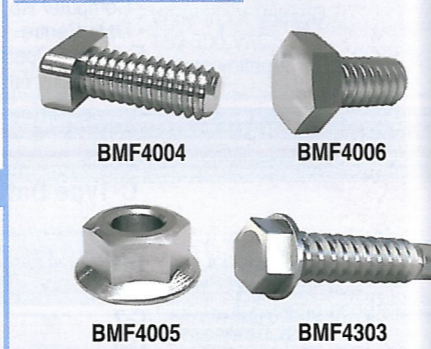
**Adj. Roof Tile Hook**



**BMF4402**

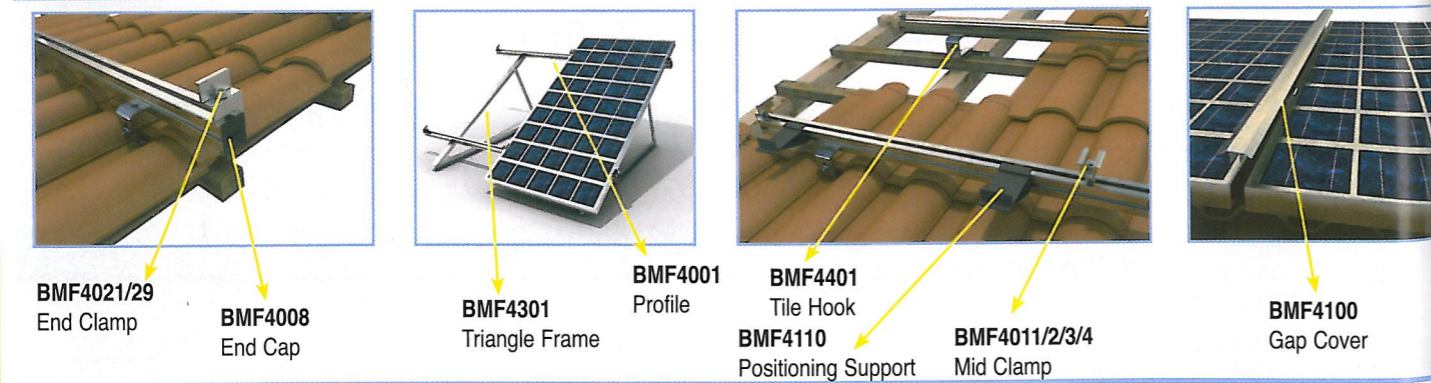
Fixing Plate: 50 x 200 x 5mm

**Fixing Accessories - Stainless Steel**



Code	Description	Pack
BMF4004	M8 x 20 Hammer-headed screws	50
BMF4006	M8 x 20 Hexagonal head screws	50
BMF4005	M8 Self-blocking flanged nut	50
BMF4303	4,8 x 32 Self-tapping hex screws	100

**Application**



BMF4021/29 End Clamp, BMF4008 End Cap, BMF4301 Triangle Frame, BMF4001 Profile, BMF4401 Tile Hook, BMF4110 Positioning Support, BMF4011/2/3/4 Mid Clamp, BMF4100 Gap Cover

## DC TO AC INVERTER/CHARGER/POWER MANAGEMENT SYSTEM

**NEW**



**CombiPlus - Pure Sine Wave Inverter/ Charger/ Power Management System** - Ideal for home, office, caravan etc.

Code	AC Voltage (IN/OUT)	Rated Power	Max Power	Size (mm)	Battery Voltage	Charging Current	Battery Bank Size
CP-1500-122	185-240VAC	1500W	3000W	362 x 258 x 370	12VDC	70A	200-700Ah
CP-3000-122	185-240VAC	3000W	6000W	424 x 258 x 370	12VDC	140A	400-1200Ah

The "CombiPlus" is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive (4-stage) charge technology and a high-speed AC Auto Transfer Switch (ATS) in a single compact enclosure. The "CombiPlus" can also support the Mains Power with battery power when the load increases or the Mains fails. If the load falls, the excess Mains Power is diverted to charge the battery. The unit can also control up to 10 SS-45C solar charge controllers to enable solar battery charging. (see page 83)

## SOLAR PANELS

These photovoltaic modules are designed for both commercial and domestic applications suitable for off-grid and grid-tied systems, and offer both high performance and reliability.

**NEW**



**NEW**

**(Poly) Multicrystalline PV Module (Lower cost)**

Code	Maximum Power (Pmax)	Voltage @ Pmax (Vmp)	Current @ Pmax (Imp)	Open-Circuit Voltage (Voc)	Short-Circuit Current (Isc)	Dimensions L x W x H
SLP005-12	5W	17.0V	0.29A	21.6V	0.34A	320 x 200 x 18mm
SLP010-12	10W	17.0V	0.58A	21.6V	0.68A	359 x 305 x 18mm
SLP020-12	20W	17.2V	1.16A	21.6V	1.31A	680 x 426 x 30mm
SLP030-12	30W	17.4V	1.72A	21.5V	1.89A	680 x 426 x 30mm
SLP040-12	40W	17.4V	2.30A	21.5V	2.53A	800 x 675 x 35mm
SLP050-12	50W	17.4V	2.87A	21.5V	3.18A	800 x 675 x 35mm
SLP060-12	60W	17.4V	3.74A	21.5V	4.11A	800 x 675 x 35mm
SLP080-12	80W	17.4V	4.58A	21.5V	5.03A	1490 x 675 x 35mm
SLP100-12	100W	17.4V	5.74A	21.5V	6.36A	1490 x 675 x 35mm
SLP120-12	120W	17.4V	7.75A	21.5V	8.52A	1490 x 675 x 35mm
SLP170-24	170W	34.8V	4.88A	43.4V	5.36A	1495 x 990 x 40mm
SLP180-24	180W	34.8V	5.17A	43.4V	5.68A	1495 x 990 x 40mm
SLP260-24	260W	34.9V	7.44A	43.7V	8.18A	1956 x 992 x 40mm
SLP270-24	270W	34.9V	7.73A	43.7V	8.50A	1956 x 992 x 40mm

**Flexible Solar Modules**

Code	Power	Voltage	Current	Voltage	Current	Dimensions L x W
FX320	32W	16.5V	1.94A	23.8V	2.40A	1380 x 400mm
FX680	68W	16.5V	4.10A	23.1V	5.10A	2849 x 394mm
FX1440	144W	33.0V	4.56A	46.2V	5.30A	5486 x 394mm

All above data are tested under STC\* and NOCT\*. \*STC: Irradiance 1000W/m<sup>2</sup>, AM1.5 spectrum, module temperature 25°C. \*NOCT: Nominal operating cell temperature (the data is only for reference). Specifications are subject to change without notice at any time.

## SOLAR REGULATORS

**NEW**



**Charge Controllers**

A combination of performance, features and competitive pricing results market. In the best controller and inverter value on the controllers on this page are ideal for systems of up to several hundred watts.

Code	Description	Amp's	Volts	Load Shed	S.O.C Indication
CML-05	Solar regulator	5A	12V	Yes	LED Indicators
CA-08	Solar regulator	8A	12V	Yes	LED Indicators
CML-08DS	Solar regulator + Night Light	8A	12/24V	Yes	LED Indicators
CML-10	Solar regulator	10A	12/24V	Yes	LED Indicators
CML-20	Solar regulator	20A	12/24V	Yes	LED Indicators
CX-10	Solar Reg with LCD Meter	10A	12/24V	Yes	LED Indicators
CX-20	Solar Reg with LCD Meter	20A	12/24V	Yes	LED Indicators
SS-30C	Solar Reg with LCD Meter	30A	12/24V	Yes	LED Indicators
SS-45C	Solar Reg with LCD Meter	45A	12/24V	No	LED Indicators
SS-60C	Solar Reg with LCD Meter	60A	12/24V	No	LED Indicators

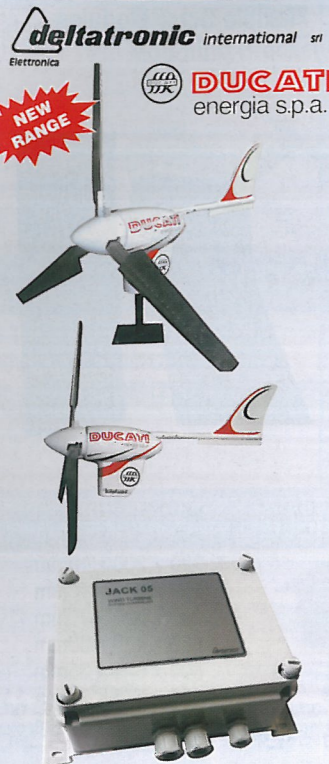
**SRX Range**

High End Charge Controller Family. This one terrifies the competition! Ideal for industrial uses and equipped with outstanding and unparalleled features like PC interface, built-in 1-year datalogger and system history, and nightlight features for street light applications. German engineering combined with high-quality components make this compact controller able to work in systems of around 1000 Watts!

**SS Range**

Controller is a three-function controller that provides regulation. Reliable solar battery charging, load control or diversion.

**KIT WIND GENERATORS**



Deltatronic wind generators are the latest design in wind generating technology. Units are built for harsh environments using aluminium and stainless steel. Wind speed, vibration and generator RPM are electronically analysed and controlled. Fitted with an emergency electronic braking system. The high quality alternators fitted to the generators are manufactured exclusively for Deltatronic by Ducati energia.

Code	DTWIND-1500	DTWIND-3000
Maximum Power	1500W	3000W
Output Voltage	0-300VAC	0-300VAC
Aux. Voltage	12V x 2 (102Ah batteries)	12V x 4 (102Ah batteries)
Pure Sine Inverter	Yes	Yes
Charge Regulator	Yes	Yes
Start Speed	2.2m/sec (8km/h)	2m/sec (7.2km/h)
Run Speed	12.5m/sec (45km/h)	12.5m/sec (45km/h)
No. of Blades	3	3
Blade Dia	2.1m	3.1m
Temp Range	-20°C to +45°C	-20°C to +45°C
Wind Brake	Yes	Yes

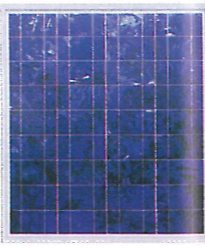
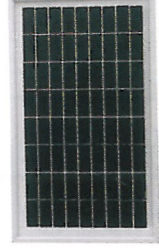
Kits include all accessories except the 6m mounting pole. Mounting pole specification available from our technical department

**Spare Parts**

Code	Description	Code	Description
6061T6	Aluminium blade for DTWIND-1500/3000	DTKIT-2	Complete body assembly
DTANE	Anemometer, wind monitor	DTALT	Alternator (same for both models)
JACK05	DT Wind System controller	DTINV-1500	1.5kW Inverter for DTWIND-1500
DTKIT-1	Ball bearings, slipping assembly, rectifier, gas shock absorber	DTINV-3000	3.0kW Inverter for DTWIND-3000
		SY120102	12V 102Ah Battery

**SOLAR PORTABLE POWER SYSTEM**

Accessories included



Code	TEA-6B11-40VA	TEA-6B11-80VA	TEA-6B11-200VA	TEA-6B11-350VA	TEA-6B11-500VA	TEA-6B11-1000VA
Rated Output after Full Charge	40Wh	80Wh	200Wh	350Wh	500Wh	1000Wh
Maximum Output	40VA	80VA	200VA	350VA	500VA	1000VA
Solar Panel Power	5Wp	10Wp	20Wp	40Wp	60Wp	100Wp
Battery: Capacity	3.3Ah/12V	7Ah/12V	20Ah/12V	38Ah/12V	65Ah/12V	100Ah/12V
Code Spare battery	SY1245	SY1270	SY12024	SY12035	SY12065	SY120102
Time for Full Charge in Direct Sunlight	12h	12h	18h	18h	18h	18h
Weight: Solar Panel	1.2kg	1.8kg	2.8kg	4.2kg	7.7kg	10.0kg
Main Body	2.5kg	3.5kg	14.5kg	18.0kg	40.0kg	53.0kg
System	3.7kg	5.3kg	12.3kg	22.2kg	47.6kg	63.0kg
Solar Panel Size	235 x 380 x 35mm	315 x 380 x 35mm	565 x 380 x 35mm	550 x 700 x 35mm	600 x 330 x 600mm	600 x 330 x 600mm
DC Outputs	Cigarette Lighter type DC outlet (10A max. @ 12VDC) 2.5mm DC Jack outlet with variable output (0.5A max. @ 5.5/ 7.5/ 9.5VDC) 2 x 2.5mm DC Jack Outlets (3A max. @ 12VDC) USB outlet (0.5A max. @ 5VDC) Terminal posts at the rear of the unit (current rating based on size of unit @ 12VDC)					
DC/AC Inverter: Input/Output (to be ordered separately) Power	DC12V/AC220~240V, 50Hz 100VA	DC12V/AC220~240V, 50Hz 200VA	DC12V/AC220~240V, 50Hz 300VA	DC12V/AC220~240V, 50Hz 600VA	DC12V/AC220~240V, 50Hz 800VA	DC12V/AC220~240V, 50Hz 1500VA

For inverters see page 79.

**Accessories**

Code	Description
TEA-12V	12V Lamp holder for DCLamp 5, 7, 9W For DC Lamps see page 506.



**TRAVEL SOLAR SYSTEM**



Code	GP-SS-40W
Size	540 x 365 x 260mm
Output Power	300W (1.3Amp)/230VAC
Battery	12V 17Ah x 2 Pcs
Function	135Wh/ day
Solar Model	20 Wp x 2 Pcs

Consists of solar module, maintenance-free lead-acid battery, controller, inverter, battery box, bracket, etc.

**SOLAR BATTERY CHARGING KITS**



Code	SLP10F-12	SLP20F-12	SLP80F-12
Size	302 x 357 x 30mm	576 x 357 x 30mm	706 x 605 x 128mm
Output Power	10W 12V (0.83A/h)	20W 12V (1.66A/h)	80W 12V (6.667A/h)

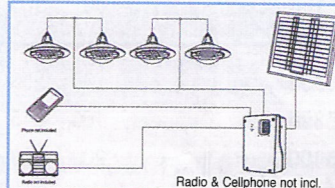
Supplied in aluminium carry case  
**Kits include:**  
• Multi-crystalline solar panel  
• Battery clamps and leads (Can be used with standard solar system)  
• Heavy-duty anodized aluminium frame and support legs  
• Durable carry/ storage bag  
• Smart solar controller built in to prevent over-charge and solar discharge

**SOLAR HOME LIGHT KIT**



Code	BSS-00504S
------	------------

- The kit consists of:
- Solar Panel 5W
  - Controller. c/w 12V battery
  - 4 x LED Lights 0.6W each
  - Cell Charger Accessories



**Spare Battery**

Code	SY1270
------	--------

**Lighting Hours:**  
The PowerPack is designed for 4hrs of light use each night (with all lamps on) to give 3 days of system use without solar charge. If only 2 lamps used per night, 8hrs of light per night can be achieved for 3 days of system use without solar



Code	BSL-P0807W
------	------------

- Solar shed or camping light
- 100 000hrs bulb life (5 LED)
- Weather-resistant
- Up to 5hrs use on full charge
- 3 Ni-Mh rechargeable battery (incl.)



Code	JY-60
<b>Specifications</b>	60W Solar Panel 12V/28Ah Battery Input: Solar Panel or 230VAC/15VDC Adaptor Output: 7 x 12VDC outlets & 1 x USB (5V, 500mA)
<b>Kit includes:</b>	• 2 x 12V/5W LED Lamps • 15" DC LCD Colour TV (Antenna is not included) • 16" 14W DC Fan • 8 Hours of use from full battery

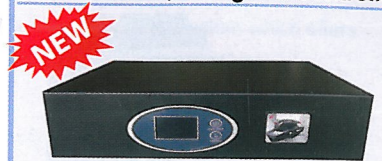


Code	JY-30
<b>Specifications</b>	30W Solar Panel 12V/17Ah Battery Input: Solar Panel or 230VAC/15VDC Adaptor Output: 7 x 12VDC outlets & 1 x USB (5V, 500mA)
<b>Kit includes:</b>	• 2 x 12V/3W LED Lamps • 1 x Cellphone Charging Adaptor • 12" DC Fan • 8 Hours of use from full battery

All items can be used for 8 hours once system is fully charged.

**SOLAR INVERTER**

Solar Inverter, Charger & Controller



Code	kVA	Watts	Input Volts	Battery Charger
HI-1K	1kVA	700W	24VDC	25A
HI-2K	2kVA	1.3kW	24VDC	20A
HI-3K	3kVA	2.5kW	24VDC	20A
HI-5K	5kVA	3.5kW	48VDC	20A

- Output volts 230VAC. Pure sine wave
- Unlimited battery back-up time
- 24 hours operation on inverter
- Includes manual mains by-pass
- RS-232 interface for remote monitoring & On/Off control
- LCD display I/P & O/P volts, frequency, load amps, battery volts
- External solar controller connection

See page 83 for Solar Controllers

## SOFT STARTERS

NEW RANGE

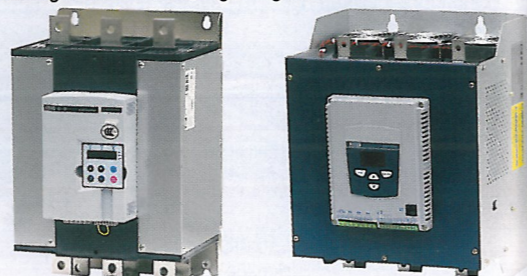
SJR2000



SJR5000



- Note kW/ Current chart for selection of soft-starter
- Intelligent soft starter, high torque.



Motor kW/Current table

Input:	3Ø 380-440V	3Ø 230-690V	Motor Power (kW)				Rated Motor Current A
Output:	3Ø 380-440V	3Ø 230-690V	230V	400V	500V	690V	
kW	Code	Code	Motor Power (kW)				Rated Motor Current A
400V							
5.5	SJR2005	SJR5005	2.2	5.5	9	11	9
7.5	SJR2007	SJR5007	4	7.5	11	15	18
11	SJR2011	SJR5011	5.5	11	15	18.5	25
15	SJR2015	SJR5015	7.5	15	18.5	32	30
18.5	SJR2018	SJR5018	9	18.5	22	30	37
22	SJR2022	SJR5022	15	22	25	37	45
30	SJR2030	SJR5030	18.5	30	37	55	60
37	SJR2037	SJR5037	22	37	45	59	75
45	SJR2045	SJR5045	25	45	55	75	90
55	SJR2055	SJR5055	30	55	75	90	110
75	SJR2075	SJR5075	37	75	90	132	145
90	SJR2090	SJR5090	45	90	110	160	175
110	SJR2110	SJR5110	55	110	132	200	210
132	SJR2132	SJR5132	75	132	160	220	250
160	SJR2160	SJR5160	90	160	200	257	300
200	SJR2200	SJR5200	110	200	250	355	370
250	SJR2250	SJR5250	132	250	315	450	470
320	SJR2320	SJR5320	160	315	400	560	570
400	SJR2400	SJR5400	200	400	500	710	720
500	SJR2500	SJR5500	300	500	600	800	840

### Applications

	SJR2000	SJR5000
Conveyors	✓	✓
Mixers	✗	✓
Fans - Airconditioning	✓	✓
Pumps	✓	✓
Heavy Duty	✗	✓
Current Control	✓	✓
Torque Control	✓	✓

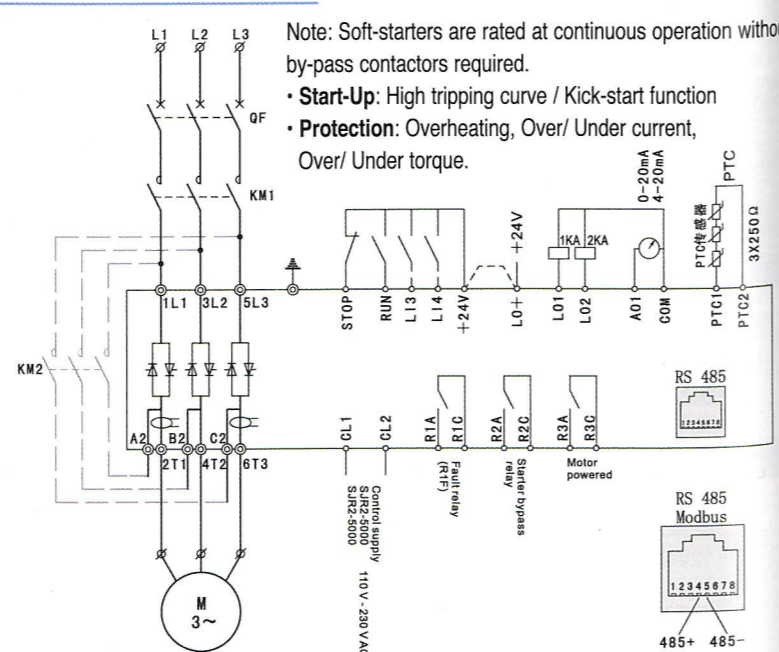
### Features

	SJR2000	SJR5000
Starting Torque	400%	600%
RS485 (Modbus)	✓	✓
Built-in PTC Function	✓	✓
Energy Saver Function	✗	✓

### Specification

Analog Output	0~20mA/4~20mA
Control Voltage	110~230V
Fault Relay	3 x 1.8A 230V
PTC Input	750Ω at 25°C
Operating Temperature	-10°C to 60°C
Logic Output	2 Open Collector Outputs compatible with 1 PLC

### Connection Block Diagram



## SOFT STARTERS

### Compact Economy Range

- Main Voltage: 3 Phase, (277-480VAC, 50Hz ±15%)
- Control Voltage: 110 - 240VAC ±10%
- Low Voltage Soft Starter up to 22kW@ 400VAC



### Features

- Slim line design
- LED indication,
- Built-in bypass contactor
- Overheating, over voltage start & stop protection

### Control Function

- Rated load current 0.3~45A
- Ramp down time 0~20Sec
- Bypass mode built-in bypass contactor
- Max start per hour 4
- Din rail installation

Three Phase 50/60Hz	Rated Motor Current (A)	SoftStart Current A	Code
220V 400V 480V			
0.55 1.10 1.50	2.5		
0.75 1.50 2	3.5	3-6	HPSE4806-C10
1.10 2.20 3	5		
1.50 3 /	6.5		
2.20 4 5	8.4	7-10	HPSE4810-C10
3 5.50 7.50	11		
4.00 7.50 10	14.8	11-16	HPSE4816-C10
5.50 11 15	21		
7.50 15 20	28.5	17-30	HPSE4830-C10
10 18.50 30	35		
11 22 35	42	31-45	HPSE4845-C10

## BRAKING RESISTORS & REACTORS

### Accessories

kW	Dynamic Braking Resistor Code	Control Unit Code	Qty	Input Reactor Code
<b>230V 1PH</b>				
0.75	EI-R 0.75/1			EI-IR 0.75/1
1.5	EI-R 1.5/1			EI-IR 1.5/1
2.2	EI-R 2.2/1			EI-IR 2.2/1
3.7	EI-R 3.7/1			EI-IR 3.7/1
<b>400V 3PH</b>				
0.75	EI-R 0.75			EI-IR 0.75
1.5	EI-R 1.5			EI-IR 1.5
2.2	EI-R 2.2			EI-IR 2.2
3.7	EI-R 3.7			EI-IR 3.7
5.5	EI-R 5.5			EI-IR 5.5
7.5	EI-R 7.5			EI-IR 7.5
11	EI-R 11			EI-IR 11
15	EI-R 15	EI-020H-S		EI-IR 15
18.5	EI-R 18.5	EI-025H-S	1	EI-IR 18.5
22	EI-R 22	EI-030H-S	1	EI-IR 22
30	EI-R 30	EI-040H-S	1	EI-IR 30
37	EI-R 37	EI-050H-S	1	EI-IR 37
45	EI-R 45	EI-060H-S	1	EI-IR 45
55	EI-R 55	EI-075H-S	2	EI-IR 55
75	EI-R 75	EI-100H-S	2	EI-IR 75
160	EI-R 160	EI-200H-S	3	EI-IR 160

Facility included with drive

### Dynamic Braking Resistors

Eric Drive is state of the art drives. Featuring built-in dynamic braking under 11kW, more than 15kW braking units are external connection.

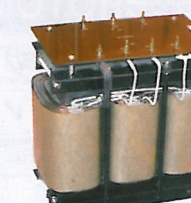
### Dynamic Braking

Braking Required*	Dynamic Braking Resistors Required
<25-30%	None required
≤25%	Select standard resistors and control unit if required
>125%**	Contact our technical dept. for these resistors

\*\*E.g. All hoist applications require 150-200% braking  
All rotating/drum application require braking resistors

### Input Reactors

Many installations have damaging harmonics in their supply. These are typically created by VSDs, soft starts and UPS's. Drives are sensitive to harmonic voltage and currents. It is recommended that all drives are protected by voltage surge protectors (see page 161) and input reactors which protect against harmonic currents. This open reactor is to be connected immediately upstream from the drive.



### Enclosed Drives

Where required, our drives can be supplied in a wall mounting or floor standing ventilated enclosure with additional controls to suit your application.



NEW

**AC VARIABLE SPEED DRIVES**

**EI-450-MINI Series**



**EI-450 Series**



**EI-650 Series**



**EIS-9001 Series**



**EI-SUPER N Series**



Input:	1Ø 230V	3Ø 380-440V	1Ø 230V	3Ø 380-440V	3Ø 380-440V	3Ø 380-460V	3Ø 500-600V
Output:	3Ø 230V	3Ø 380-440V	3Ø 230V	3Ø 380-440V	3Ø 380-440V	3Ø 380-460V	3Ø 500-600V
kW	Code	Code	Code	Code	Code	Code	Code
0.2	EI-450M-P2L		EI-450-P2L				
0.4	EI-450M-P4L	EI-450M-P4H	EI-450-P4L				
0.75	EI-450M-S1L	EI-450M-01H	EI-450-S1L	EI-450-01H	EI-650-01H	EIS-9001-001H	EIS-SUPERN-001H
1.5	EI-450M-S2L	EI-450M-02H	EI-450-S2L	EI-450-02H	EI-650-02H	EIS-9001-002H	EIS-SUPERN-002H
2.2			EI-450-S3L	EI-450-03H	EI-650-03H	EIS-9001-003H	EIS-SUPERN-003H
3.7				EI-450-05H	EI-650-05H	EIS-9001-005H	EIS-SUPERN-005H
5.5				EI-450-07H	EI-650-07H	EIS-9001-007H	EIS-SUPERN-007H
7.5				EI-450-010H	EI-650-010H	EIS-9001-010H	EIS-SUPERN-010H
11					EI-650-015H	EIS-9001-015H	EIS-SUPERN-015H
15					EI-650-020H	EIS-9001-020H	EIS-SUPERN-020H
18.5					EI-650-025H	EIS-9001-025H	EIS-SUPERN-025H
22					EI-650-030H	EIS-9001-030H	EIS-SUPERN-030H
30					EI-650-040H	EIS-9001-040H	EIS-SUPERN-040H
37						EIS-9001-050H	EIS-SUPERN-050H
45						EIS-9001-060H	EIS-SUPERN-060H
55						EIS-9001-075H	EIS-SUPERN-075H
75						EIS-9001-100H	EIS-SUPERN-0100H
110						EIS-9001-150H	
160						EIS-9001-200H	
185						EIS-9001-250H	
220						EIS-9001-300H	
300						EIS-9001-400H	

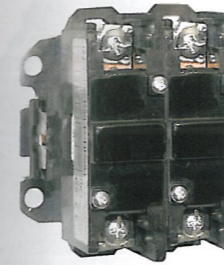
Applications	EI-450 MINI	EI-450	EI-650	EI-9001	EI-SUPERN
Conveyors	✓	✓	✓	✓	✓
Mixers		✓	✓	✓	✓
Fans - Airconditioning	✓	✓	✓	✓	✓
Pumps	✓	✓	✓	✓	✓
Hoist Drives				✓	✓
Long + Cross Travel		✓	✓	✓	✓
Torque Control				✓	✓
Precise Speed Control				✓	

Features	EI-450 MINI	EI-450	EI-650	EIS-9001	EI-SUPERN
PWM Control V/F	✓	✓	✓	✓	✓
PWM Sensorless Flux Control		✓	✓	✓	✓
Full Flux Vector Control				✓	✓
150% Starting Torque		3Hz	1Hz	1Hz	1Hz*
Auto Tune Function			✓	✓	✓
Maximum Hz		400Hz	400Hz	500Hz	400Hz 400Hz
RS232				✓	✓
ModBus		✓	✓	✓	✓
RS485		✓	✓	✓	✓
Built-in PID Function			✓	✓	✓
Local Potentiometer		✓	✓	✓	✓
Energy Saver Function		✓	✓	✓	✓
Built in Braking Transistor		✓	✓	✓	✓
Copy Keypad Function		✓	✓	✓	✓
Remote Mount Keypad Option		✓	✓	✓	-

Dynamic Braking may be required for applications with high inertia loads, fast braking or hoists. The amount of braking required varies for different application designs. e.g. Hoist applications require between 150% to 200% braking. See page 87.

**2 POLE CONTACTORS**

**NEW**



TCDP

**2 Pole Contactors**

• Suitable for airconditioners

Code	Rating A (AC1)	No. of Poles	Terminals
TCDP202*	20A	2 N/O	Screw Cage/ PushOn
TCDP302*	30A	2 N/O	Screw Cage/ PushOn
TCDP402*	40A	2 N/O	Screw Cage/ PushOn

\*Add coil voltage: M = 240VAC, Q = 400VAC

**Heavy Duty Relay**

G7LB-2A*	25A	2 N/O	Clamp
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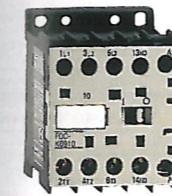
\*Add coil voltage: 24VAC, 110VAC, 230VAC



G7LB-2A

**MINI CONTACTORS**

**Mini Contactors**



Code	With AC Control Circuit	Auxiliary Contacts	Max ratings for application of 3-phase motors			Max ratings for application on resistive heating loads	
			Category AC3			Category AC1	
Supplied with	400V A	400V KW	500V KW	400V A	500V KW		
FDC-K0910*	N/O		9	4	4	20	13
FDC-K0901*	N/C		9	4	4	20	13

\*Add coil voltage: B = 24VAC, F = 110VAC, M = 230VAC, Q = 400VAC

Spare Coil Code FDC-D2\* \*Add voltage: B = 24VAC, F = 110VAC, M = 230VAC, Q = 400VAC

**MOTOR START PUSH BUTTONS**

**Direct Motor Starters for 3 Phase Motors**

Rated Volts: 550VAC  
Cable Entry: 20mm



Code	SP-315	SP-330	SY-315	SY-330
Rating: A	15A	30A	15A	30A
kW	0-2.2kW	0-3.7kW	0-2.2kW	0-3.7kW
Mounting	Surface	Surface	Flush	Flush
Material	Steel	Steel	Steel	Steel

**DIRECT MOTOR STARTERS FOR SINGLE PHASE & 3 PHASE MOTORS IP55**

**Single Phase**

**Single Phase or Three phase**

**NEW**



Code	SDZ-6A	SDZ-6B	SDZ-6E	SDZ-08B
Rating: A	15A	15A	15A	15A
kW	2.2kW	2.2kW	2.2kW	2.2kW (1PH) or 12A 400VAC (3PH)
Output size	50 x 23mm	50 x 23mm	46 x 22mm	

• Power Failure Protection

• Under Voltage Protection